KOGANEI

Catalog No.BKC0016

NEW Products

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ISO9001
ISO14001

TÜV CERT ISO 9001 / ISO 14001

Creceed

Static Electricity Removing Unit

IONIZER

Static Electricity Removing Unit
IONIZER

Static electricity is generated by triboelectric, peeling or induction charging.
Especially within the electronics industry, static electricity causes damage to semiconductor or electronic devices. It can also cause electronic malfunction due to particles on liquid crystal, wafer or disks, having detrimental effects on both productivity and quality control.
Koganei Static Electricity Removing Unit Ionizers meet the need of pinpoint to wide-area static charge removal using the high frequency AC method.
The Blow type Ionizer allows for static charge removal for numerous applications using a variety of nozzles, the Fan type Ionizer does not require supplying air, and the Air Gun type Ionizer makes the full use of its capabilities for dust removal. We provide wide range of products for a variety of workpieces.

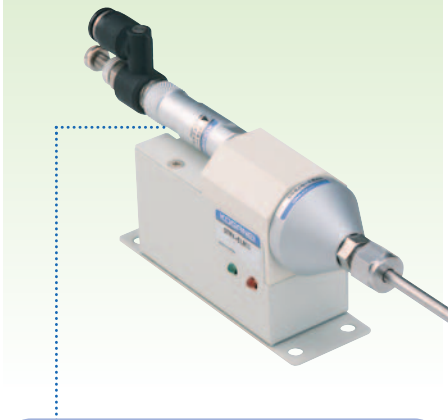
Caution Read "Safety Precautions" on page ❸ before use.

Products line up

BLOW TYPE page 5

Because of good ion balance, removes static charges from pinpoint to wide area steadily and quickly.
Various nozzles enable static charge removal for a broader range of workpieces.

1-HEAD TYPE



2-HEAD TYPE

COMPACT BLOW TYPE

MINI LINE FILTER

Offers clean and economical air. Use of a porous hollow fiber membrane achieves a lightweight and compact filter with simple construction.
Can be mounted directly to the static electricity removing unit IONIZER.

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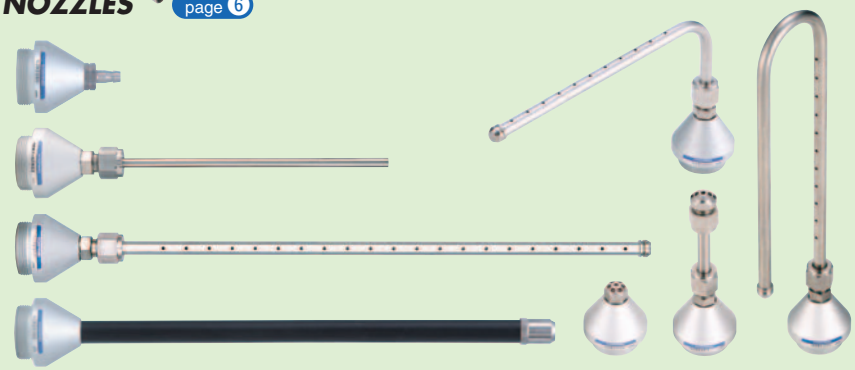
NOZZLES page 6



FAN TYPE page 29

Three fan type Ionizers cover the needs of medium to wide-area static charge removal. No need to supply air reduces running cost.

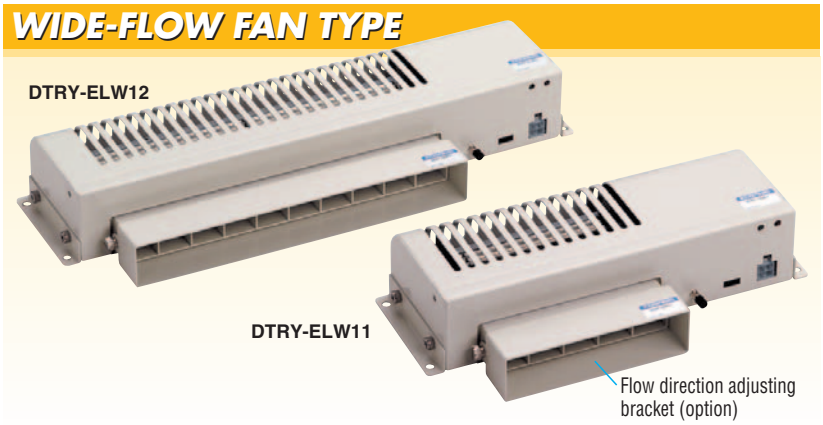
FAN TYPE

DTRY-ELF01

WIDE-FLOW FAN TYPE

DTRY-ELW12

DTRY-ELW11



TURBO-FLOW FAN TYPE

DTRY-ELT11

DTRY-ELT21

AIR GUN TYPE page 37

Light force operating electric switch for control switch. Main body is very light, weighing only 140 g. It can remove static electricity and blow off dust instantaneously.

ELECTROSTATIC FIELD METER

The electrostatic field meter is a handy portable measuring instrument with a digital-display. It can measure the electric potential of charged workpieces in a non-contact manner. It is ideal for use in the quality control of charging state measurement.

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Safety precautions (Static Electricity Removing Unit IONIZER) Always read these precautions carefully before use.

Before selecting and using products, please read all the Safety Precautions carefully to ensure proper product use.
The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to assets beforehand.
Follow the Safety Precautions for: ISO4414 (Pneumatic fluid power--Recommendations for the application of equipment to transmission and control systems), JIS B 8370 (Pneumatic system regulations)

The directions are ranked according to degree of potential danger or damage: "DANGER!" "WARNING!" "CAUTION!" and "ATTENTION!"

⚠ DANGER	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
⚠ WARNING	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
⚠ CAUTION	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
⚠ ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

■ This product was designed and manufactured as parts for use in General Industrial Machinery.
■ Before selecting the equipment and using any product, always read the Safety Precautions, the Catalog, the Instruction Manual, etc.
■ After reading the Instruction Manual, etc., always place the Manual where it can be easily available for reference to users of this product.
■ If transferring or lending the product to an another person, always attach the Instruction Manual, etc., to the product where it is easily visible, to ensure that the new user can use the product safely and properly.
■ The danger, warning, and caution items listed under these "Safety Precautions" do not cover all possible cases. Read the catalog and user's manual carefully, and always keep safety first.

⚠ DANGER

- Do not use for the purposes listed below:
  1. Medical equipment related to maintenance or management of human lives or bodies.
  2. Mechanical devices or equipment designed for the purpose of moving or transporting people.
  3. Critical safety components in mechanical devices.
     This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.
- Do not use in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
- When attaching the product, always ensure that it is securely fixed in place. Dropping or falling the products, or improper operation could result in injury.
- The Ionizer generates high voltages. Do not disassemble, adjust, or convert the device, because it can be very dangerous. Such action could result in a malfunction, injury, electric shock, fire, etc.
- Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shock, fire, etc.
- Always shut off power when inspecting, cleaning and performing maintenance. Leaving the power ON could resurt in electric shocks.
- Never touch the discharging needle when the green LED is ON. You may receive an electrical shock as a high voltage is applied to the discharging needle.
- Never convert the product, otherwise you could be injured by such as abnormal operations.

⚠ WARNING

- Do not use this product in excess of its specification range. Such use could result in product breakdowns, cessation of function, shutdown or damage. It could as well result in a significant reduction of its service life.
- Before supplying air or electricity to the device and before starting operation, always conduct a safety check of the area of machine operation. Careless supply of air or electricity could possibly result in electric shocks, or in injury caused by contact with moving parts.
- Do not touch the discharging needles, the terminals and/or the miscellaneous switches, etc., while the device is plugged in. There is the possibility of electric shock and abnormal operation.
- Do not allow the product to be thrown into fire. The product could explode and release toxic gases.
- Do not sit on the product, place your foot on it, or place other objects on it. Accidents such as falling and tripping over could result in injury. Dropping the product may damage or break the product resulting in abnormal, improper or erratic operation.
- Handle the discharging needle with caution, since it has a sharp-pointed tip. Wrong handling of it could result in body injury.
- Before performing product maintenance/inspection, piping mounting/dismounting or replacement, be sure to isolate the air supply completely and make sure that the pressure inside the product and the piping to which the product is connected are exhausted. Especially note that the air compressor and the air storage tank will have air residue.
- Always shut off power when performing wiring work. Leaving the power ON could result in electric shocks.
- Avoid scratching the cords of the sensor switch lead wires, etc. Letting the cords be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective transmission that lead to fires, electric shocks, or abnormal operation.
- Do not pull out the connectors while the power is ON. Also, do not apply unnecessary stress on the connector. It could result in erratic equipment operation that could lead to personal injury, equipment breakdown, or electrical shocks, etc.
- Always check the Catalog to ensure that the product wiring and piping are done correctly. Errors in wiring and piping could lead to abnormal operation of the actuators, etc.
- After wiring work, always check to ensure that no wiring connection errors exist before turning on the power. When the + side and the - side of the power supply wiring are connected in reverse, a failure will occur.
- Media used for the Blow Type is air, never use other than the air.
- Do not use the supplied cable for AC adapter or power and signal cables included in the products for a moving section. Otherwise, they may break down.

⚠ CAUTION

- When mounting the product, leave room for adequate working space around it. Failure to assure adequate working space will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- The Ionizer emits ozone into an atmosphere. If a single unit is operated, ozone will reach the saturation point and will not increase beyond the certain level. However, if several units are operated simultaneously and if you smell ozone, pay attention to the ventilation of the ambient. Do not attempt to check the smell of ozone by directly bringing your face close to the outlet of a nozzle, since you might get your nose and throat hurt.

⚠ ATTENTION

- When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or Instruction Manual, or in applications where safety is an important requirement, such as in an airplane facility, combustion equipment, leisure equipment, safety equipment and other places where human life or assets may be greatly affected, take adequate safety precautions such as applications with enough margins or fail-safe measures for ratings and performance. Please consult KOGANEI with any questions.
- Always check the catalog and other reference materials for product's wiring and piping.
- When handling the product, wear protective gloves, safety glasses, safety boots, etc., to ensure safety.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Do not use the Ionizer for any other purpose than the static electricity removal.

⚠ OTHER

● Always observe the following items.
1. When using this product in pneumatic systems, always use genuine KOGANEI parts or compatible parts (recommended parts). When conducting maintenance and repairs, always use genuine KOGANEI parts or compatible parts (recommended parts). Always observe the required procedures.
2. Do not attempt inappropriate disassembly or assembly of the product relating to basic configurations, or its performance or functions. KOGANEI cannot be responsible if these items are not properly observed.

General precautions

1. Before plumbing, thoroughly flush the pipe's inside with compressed air. Metal chips, sealant tape and rust generated during plumbing could cause clogging and/or malfunction.
2. Use clean air. No vapor and oil are allowed.
3. The Ionizer cannot be used when the media or ambient atmosphere contains the following: organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas or acid.
4. Do not apply excessive external force to the device.
5. Do not disassemble or convert the product.
6. Do not expose the product to ultraviolet light or weathering.

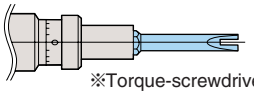
Handling Instructions and Parecautions (for IONIZER)

Installation

1. Install the unit on a flat surface. If the unit is installed with distortion or bending, a malfunction may occur.
2. For installation of the unit, pay attention to the contamination by oil/water, high temperatures or high humidity. Especially, avoid a place subject to dew condensation.
3. Even when blowing the ionized air onto a charged object while it is getting close to or getting contact with the others, you could not expect the desired effect of removing static charges.
   When installing the Ionizer, pay particular attention to ambient conditions of an object from which to remove static charges.
4. If the Ionizer is not grounded properly, static charge removal level will be reduced.
5. When mounting the fan, turbo-flow fan or wide-flow fan type Ionizers, do not thread mounting screws in 5mm or deeper; otherwise the mounting screws may contact the inner circuit board.
6. When installing the fan, turbo-flow fan or wide-flow fan type Ionizers, ensure sufficient space so as not to block the suction opening, except the use of the airflow rate adjusting plate.

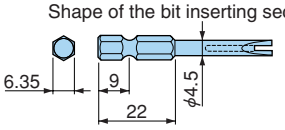
Precautions on Use

1. Before inspections, cleaning, or maintenance, be sure to switch off power supply.
2. When grounding metallic parts of the nozzle in the blow type Ionizer, the abnormality indicator LED could turn on.
3. In the case of a failure, always consult Koganei for adjustment or repair of the product.
4. To replace the discharging needle of the Blow Type unit, a dedicated tool has to be used. The dedicated tool (**DTRY-ELB21**) is used in combination with a torque-screwdriver that accepts the bit-socket illustrated below. The dedicated tool is designed to prevent the discharging needle and screws of the main unit from being broken under excessive force. Try to limit the tightening torque to 19.6 N•cm {2 kgf•cm} or less. If the discharging needle or the main unit is damaged because the discharging needle was replaced without using the dedicated tool, it will not be covered under our warranty.



※Torque-screwdriver is sold separately.

Shape of the bit inserting section

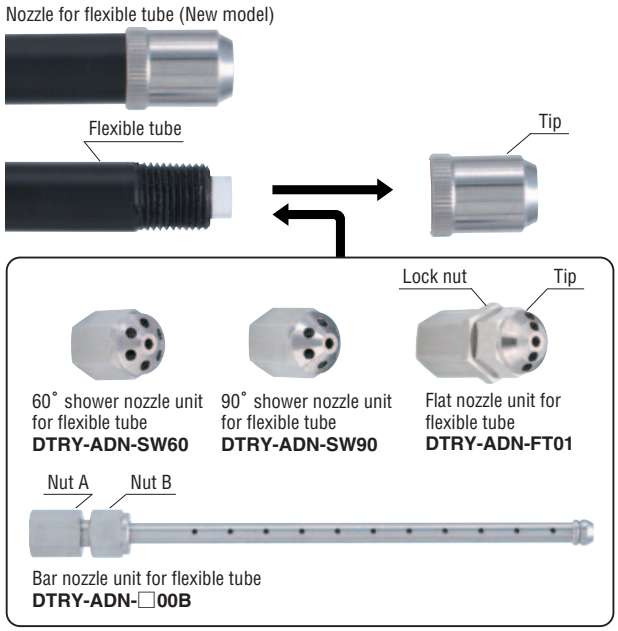


5. The service life of the discharging needle varies depending on the environmental conditions where it is used. A poor operating environment (e.g., very humid conditions) or failure to clean the discharging needle will lead to degraded performance of the discharging needle. Hence, periodic maintenance is required.
6. Care should be taken to wire correctly. When the + side and the – side of the power supply wiring are connected in reverse to the main unit of the Ionizer, a failure will occur.
7. When the power to the main unit of the Ionizer is turned on immediately after being turned off, an abnormal output occurs. When performing such an operation, be sure to wait at least 1 second or longer after turning off.
8. Always supply the power of the blow type Ionizer with applying air. Otherwise, the ozone density inside the Ionizer would increase due to electric discharge, which may cause bad effect on the main body and its surroundings.
9. To turn on and off the Ionizer power supply, make it the input on ⏀24 VDC side.
10. Do not use the product at a moving section of a device under shock and vibration.
11. The tubes for the standard nozzle are consumables, so must be replaced periodically. (Replace tubes when they are softening or deteriorating.)
12. Do not use the cable for AC adapter or power supply and signal cables provided with the products, for a moving section. Otherwise, they may break down.
13. Do not use other nozzles than ours, and not convert nozzles.
14. When bending the flexible tube, hold the flexible tube at its base. Otherwise, connection between the main unit and tube could be damaged.

Installation of nozzle unit for flexible tube

Before mounting a nozzle unit on the tips of flexible tube nozzles (**DTRY-NZR□00ND** and **DTRY-NZL□00ND**), remove the component at the tip of it. And then screw a nozzle unit into the flexible tube. When adjusting the direction of the ionized air flow outlet of the bar nozzle unit for flexible tube (**DTRY-ADN-□00B**), loosen the nut B. At this time, secure the flexible tube with the nut A to prevent applying force on the tube.
When adjusting the direction of the ionized air flow outlet of the flat nozzle unit for flexible tube (**DTRY-ADN-FT01**), make the adjustment at the end of the unit and secure it with the nut.

Caution 1. To replace nozzle or nozzle unit for flexible tube, always turn off the power supply and shut off the air.
2. The recommended tightening torque of nozzle unit for flexible tube is 30 N•cm {3.1 kgf•cm}.



Minimum bending radius of flexible pipes / tubes

mm

Model	Minimum bending radius
DTRY-NZR□00ND/DTRY-NZL□00ND	40
DTRY-ADN-U	15
DTRY-ADN-F	50
DTRY-ADN-S	10

Caution When used at the minimum bending radius, static charge removing performance may reduce.

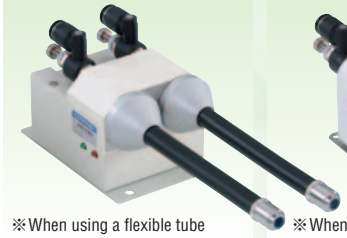
BLOW TYPE / COMPACT BLOW TYPE

The Blow type version can remove static charges with pinpoint accuracy.
As distinct from current AC type Ionizers, these units can be used with a low voltage DC power supply due to the use of a compact high voltage transformer, which eliminates high voltage wiring.
These units are high frequency AC type with superior ion balance.
A variety of nozzles allow for static charge removal in pinpoint area or for use on wide workpieces.
The compact blow type DTRY-ELL01 has achieved smaller size and weight with a 30% volume reduction and 35% weight reduction compared to DTRY-ELB01.

1-HEAD TYPE

※When using a standard nozzle

2-HEAD TYPE



※When using a flexible tube

COMPACT BLOW TYPE

※When using a standard nozzle

BLOW TYPE

IONIZER body
(In combination with a nozzle.)

COMPACT BLOW TYPE

■Enables carrying ion through a tube or metal pipe, which was considered to be impossible up until now.
- Allows static charge removal where there is limited space to install the Ionizer body.

■These unit can be used with a low voltage DC power suppy due to an in-built compact high voltage transformer.
- This eliminates high voltage wiring and power supply, leading to trouble free use caused by power supply and wiring section.

■Enables static charge removal with pinpoint accuracy.
- By using an tube or metal piping, the Blow type enables quick static charge removal on a targeted point due to the ability to move the nozzle closer to the point.
- Minimum distance between the nozzle and the targeted object is 1mm.

■Due to good ion balance, removal of static charge is always possible.
- Decay time from 1000V to 100V at 100mm distance is within a second. (when using a standard nozzle, and applying 0.1MPa air pressure)

■There is no electric field concentration at ionized air flow outlet, therefore there is no detriment to the device.
- A strong electric field is generated at the high voltage applying section in current ionizers. This can cause breakage of the device when bringing the Ionizer close. However, the Koganei Ionizer causes no damage to the device even when bringing it close.

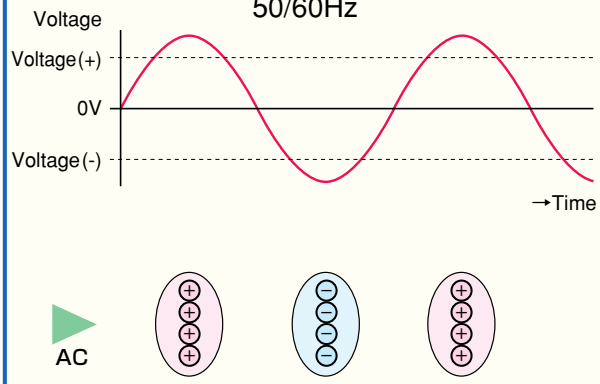
■Very low generation of electrical noise due to low voltage output.
- Meets the requirements for EN55011: 1998 Group1 Class A

■Alarm output when abnormality occurs in high voltage section where generating ion.
- Ensures prevention of producing defective products caused by faulty removal of static charges.

■Controller is available
- The controller includes an in-line filter **PLF100** and a regulator. The former removes particles and the latter adjusts pressure, enabling control of both power and air supply for the Blow type. Note: Ensure removal of oil and water in the air beforehand.

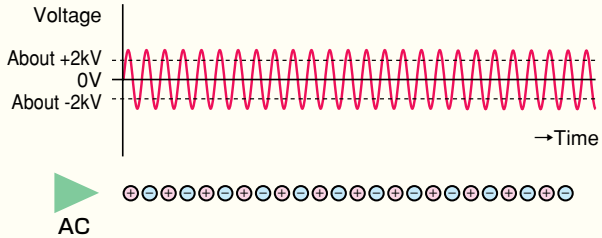
Conventional method (power-frequency)

50/60Hz



High frequency method

68,000Hz (68kHz)



- This enables to carry ions through a pipe or tube allowing you to make pinpoint static charge removal for distant workpieces.
- Ions are generated uniformly and corona discharges occur at short intervals, allowing you to create a stable high-ion-density environment.
- It is superior in averaged electric charge for a minute surface area.
- No high voltage wiring is required, thereby improving safety.

Nozzles for Blow Type

● Standard nozzle Note
DTRY-NZR01NS

■ Options for standard nozzle
(same as the compact blow type)

- Conductive urethane tube (500mm)
DTRY-ADN-U

- Teflon tube (500mm)
DTRY-ADN-F

- Silicone tube (500mm)
DTRY-ADN-S

● Shower nozzles
DTRY-NZR20SW (60° type)
DTRY-NZR21SW (90° type)

● Flat nozzle
DTRY-NZR01FT

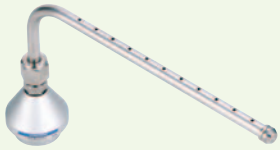
● Stainless steel pipe nozzle (120 mm)
DTRY-NZR02S

● Straight bar nozzles
(Nominal size: 100～500 mm)
DTRY-NZR100B～500B

● Spiral bar nozzle
DTRY-NZR200SP

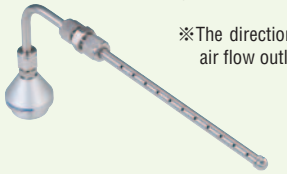
● U-shaped bar nozzle
DTRY-NZR100U

● L-shaped bar nozzles
DTRY-NZR100L(Nominal size: 100 mm)
DTRY-NZR200L(Nominal size: 200 mm)



● Free-mounting L-shaped bar nozzles
DTRY-NZR100FMT(Nominal size: 100 mm)
DTRY-NZR200FMT(Nominal size: 200 mm)

※The direction of the ionized air flow outlet is adjustable.



● Nozzle with a flexible tube(100～500 mm)
DTRY-NZR100ND～500ND

■ Optional nozzle units for flexible tube
(same as the compact blow type)

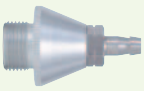
- Shower nozzle unit for flexible tube
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

- Flat nozzle unit for flexible tube
DTRY-ADN-FT01

- Bar nozzle unit for flexible tube
DTRY-ADN-100B(Nominal size: 100 mm)
DTRY-ADN-200B(Nominal size: 200 mm)

Nozzles for Compact Blow Type

● Standard nozzle Note
DTRY-NZL01NS



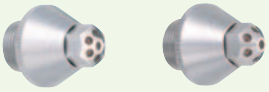
■ Options for standard nozzle
(same as the blow type)

- Conductive urethane tube (500mm)
DTRY-ADN-U

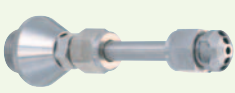
- Teflon tube (500mm)
DTRY-ADN-F

- Silicone tube (500mm)
DTRY-ADN-S

● Shower nozzles
DTRY-NZL20SW (60° type)
DTRY-NZL21SW (90° type)



● Flat nozzle
DTRY-NZL01FT



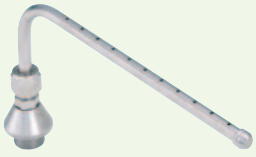
● Stainless steel pipe nozzle (120 mm)
DTRY-NZL02S

● Straight bar nozzles
(Nominal size: 100～500 mm)
DTRY-NZL100B～500B

● Spiral bar nozzle
DTRY-NZL200SP

● U-shaped bar nozzle
DTRY-NZL100U

● L-shaped bar nozzle
DTRY-NZL100L(Nominal size: 100 mm)



● Free-mounting L-shaped bar nozzles
DTRY-NZL100FMT(Nominal size: 100 mm)
DTRY-NZL200FMT(Nominal size: 200 mm)

※The direction of the ionized air flow outlet is adjustable.

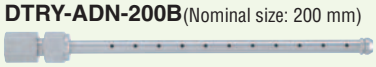
● Nozzle with a flexible tube(100～500 mm)
DTRY-NZL100ND～500ND

■ Optional nozzle units for flexible tube
(same as the blow type)

- Shower nozzle unit for flexible tube
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

- Flat nozzle unit for flexible tube
DTRY-ADN-FT01

- Bar nozzle unit for flexible tube
DTRY-ADN-100B(Nominal size: 100 mm)
DTRY-ADN-200B(Nominal size: 200 mm)



Note: The standard nozzles, **DTRY-NZR01NS** and **DTRY-NZL01NS** have a groove on the hexagonal section, to be distinguished from **DTRY-NZR01S** (earlier model) and **DTRY-NZL01S** (earlier model), respectively.

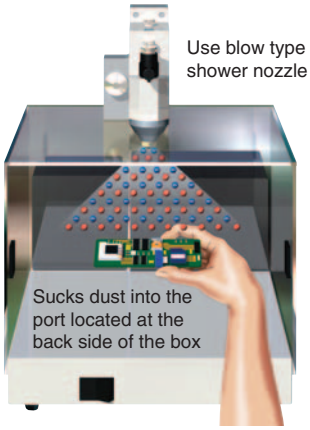
Remarks: Nozzle connecting section to the Ionizer body (cone-shaped part) and tip of nozzles are made of aluminum alloy and stainless steel respectively.
The nozzle with a flexible tube consists of inner tube made of Teflon, tube interior made of aluminum alloy, tube outer coating of polyethylene and stainless steel made tip.

Blow Type Application Examples

Removal of dust on parts in the clean box

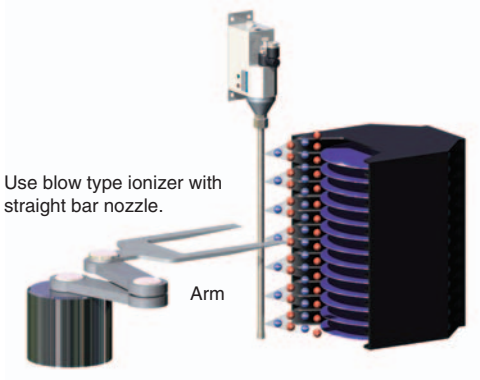
Optimum for the dust removal process before assembling electronic components.

Blow Type Ionizer blows away dust by blowing ionized air while collecting it into the port located at the backside of the box for keeping clean environment.



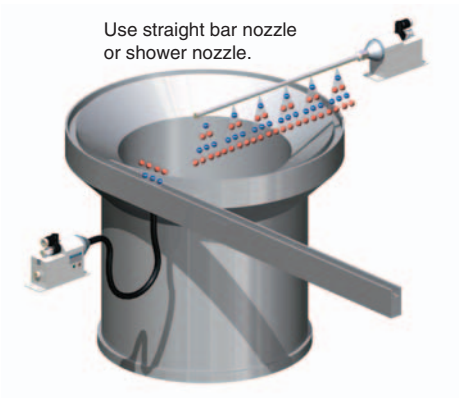
Removal of static charges when taking out or storing wafers

Avoid electrostatic discharging when taking wafers out of their cassettes, and prevents the stored wafers from being attracted to the transfer arm.



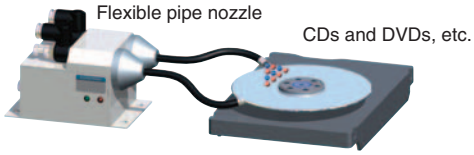
Removal of static charges on parts when carried by a parts feeder

Static electricity is generated due to friction of parts while the parts feeder conveys them, and the parts stick to feeder's surface.
Use the blow type ionizer to prevent parts from being sticked caused by static electricity. Also, simultaneous use with a fan type is effective against the static electricity removal.



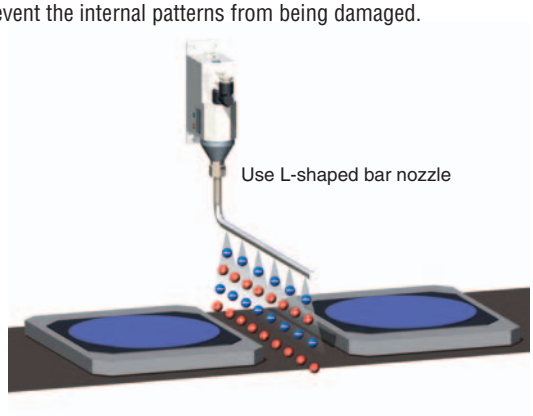
Removal of static charges and particles on CDs and DVDs

Use 2-head type with flexible pipe nozzle to remove static charges and particles on CDs and DVDs from both sides.



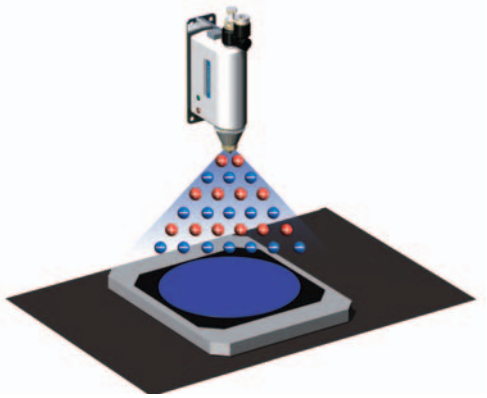
Removal of static charges when conveying wafers

Prevent dust from being attracted to the surface of wafers.
Prevent the internal patterns from being damaged.



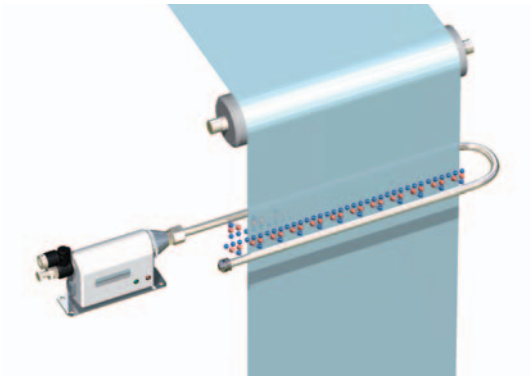
Removal of static charges on wafers

Use blow type ionizer with shower nozzle that provides Ionized air flow with a wide angle to remove static charges on wafers.



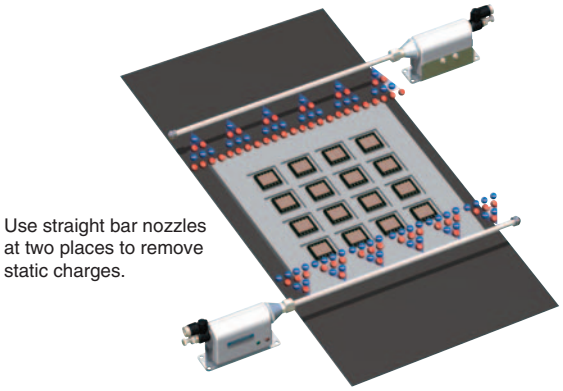
Removal of static charges on wrap film

Use blow type Ionizer with U-shaped bar nozzle in confined space to remove static charges on both sides of the wrap film.



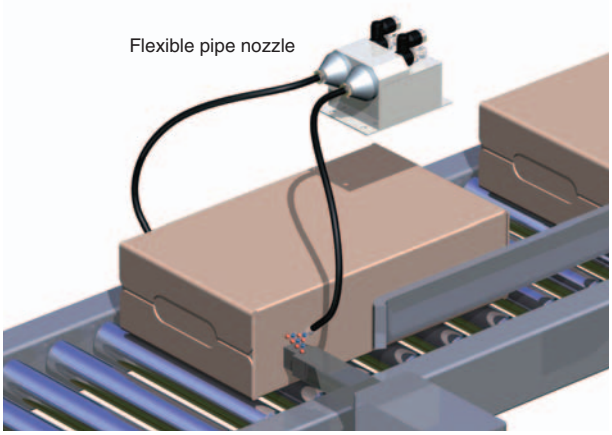
Removal of static charges on devices carried by pallets

Use blow type Ionizer with straight bar nozzle to remove static charges on a wide carrying pallet.



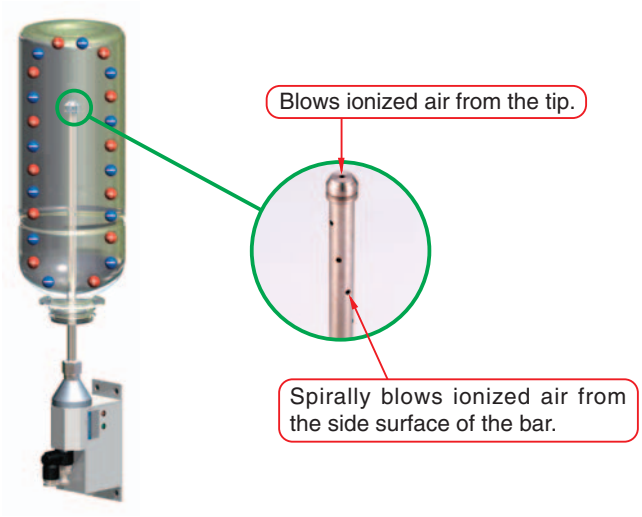
Removal of static charges in printing process

Use 2-head type Ionizer with nozzle and flexible tube. Prevents faulty printing caused by static charges in ink jet printing process.



Removal of static charges in bottles (Removal of dust)

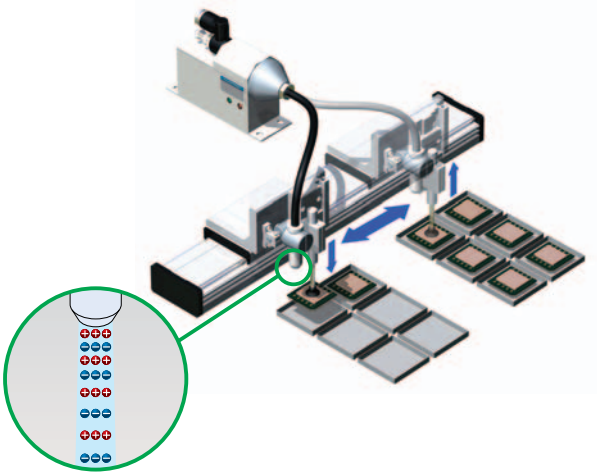
Use a spiral bar nozzle to remove static charges inside a bottle.



Removal of static charges on electronic parts

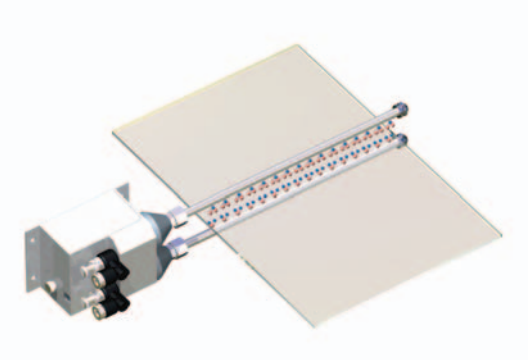
Very low generation of electrical noise

- No damage to a device caused by induction electric field by the discharging needle.
- Removal of static charges with pin point accuracy
  (It is possible to place the nozzle close to a device.)



Removal of static charges on glass substrate

Use 2-head type Ionizer with two straight bar nozzles to remove static charges on FPD glass.



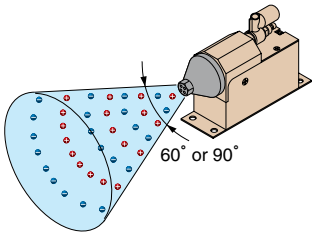
Removal of static charges in pipes (ϕ50 or less)

By inserting the tube inside a pipe enables removal of static charges.

Select the nozzle for your application

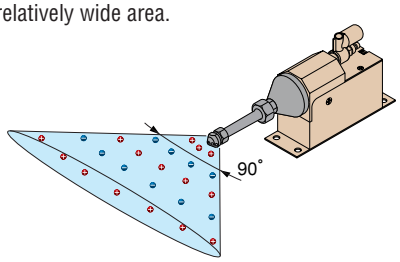
Shower nozzle

- Blows ionized air at 60˚ or 90˚ angles



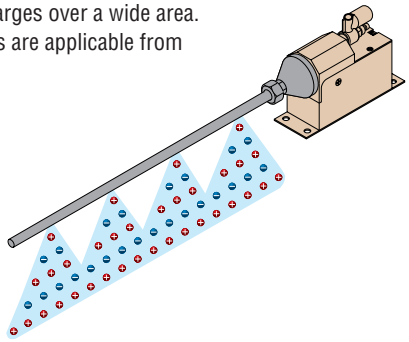
Flat nozzle

- Blows ionized air at 90˚ angle, suitable for removal of static charges over relatively wide area.



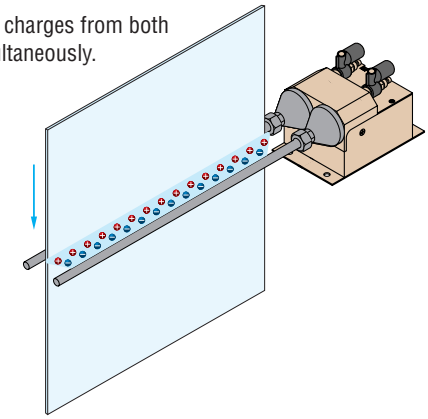
Straight bar nozzle

- Removal of static charges over a wide area.
- 5 types of bar nozzles are applicable from 100 to 500 mm area.



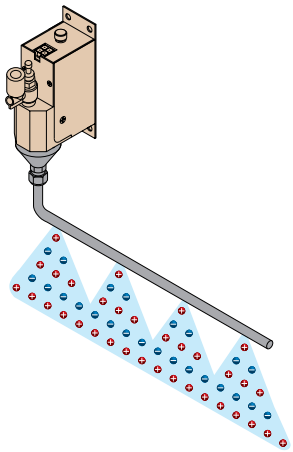
Use of two straight bar nozzle

- Removal of static charges from both sides of film simultaneously.



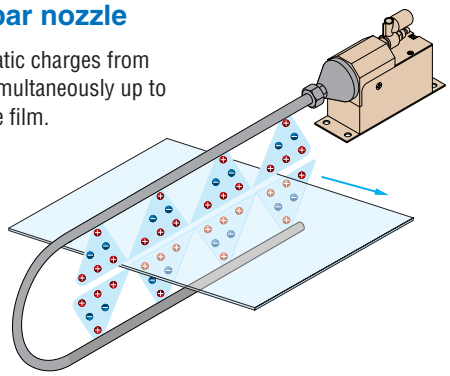
L-shaped bar nozzle

- Space saving and optimum for locations where straight bar nozzles can't reach.
- 2 types of L-shaped bar nozzles are applicable for 100 and 200 mm area.



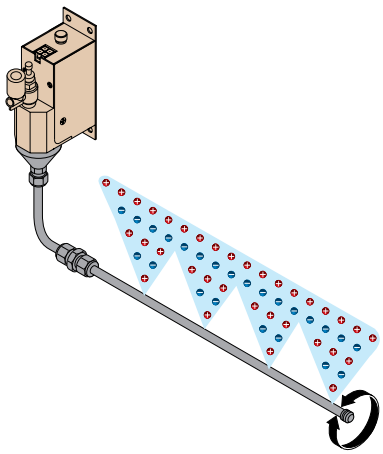
U-shaped bar nozzle

- Removal of static charges from both sides simultaneously up to 100 mm wide film.



Free-mounting L-shaped bar nozzle

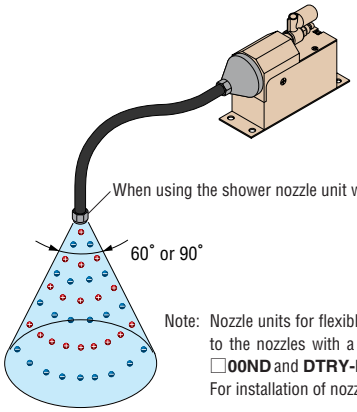
- Rotates the bar to change the direction of the ionized air flow outlet.
- It is applicable for 100 and 200 mm areas.



Rotate the bar in the desired direction.

Combining various nozzle units with flexible tube

- Combining various nozzle units with the flexible tube enables static charge removal for various applications.



Note: Nozzle units for flexible tube can be only attached to the nozzles with a flexible tube (**DTRY-NZR** □**00ND** and **DTRY-NZL** □**00ND**)
For installation of nozzle unit, see page ❹.

Specifications

Blow Type and Compact Blow Type

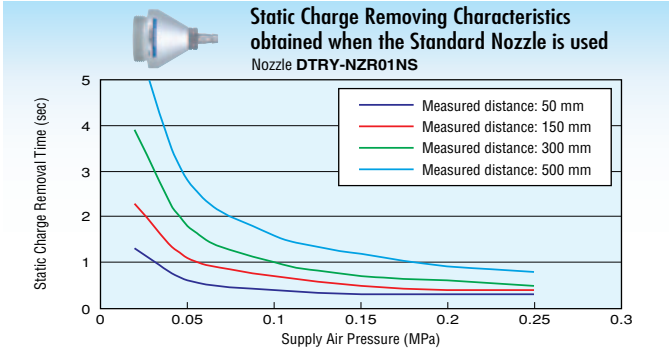
Item \ Model		DTRY-ELB01 (Main Unit for 1-head Type)	DTRY-ELB02 (Main Unit for 2-head Type)	DTRY-ELL01 (Main Unit for 1-head Type)
Power supply		24 VDC ± 5%		
Consumption current	mA	Approx. 100		
Output voltage	kV	Approx. 2 (High frequency type)		
Indicator LED	Power supply	While power is supplied, power indicator LED turns on (Green)		
	Abnormality	When an abnormality occurs, abnormality indicator LED turns on (Red)		
Power safety circui		Output alarm signal when abnormality occurs during discharge, open collector 24 VDC (10 mA Max.)		Output alarm signal when abnormality occurs during discharge, **a**-contact normally open (30 VDC, 200 mA)
Outer dimensions	mm	92(L)×30(W)×54(H) (Main unit only)	92(L)×62(W)×54(H) (Main unit only)	65(L)×25(W)×47(H) (Main unit only)
Mass	g[oz.]	190[6.70] (Main unit only)	300[10.58](Main unit only)	122[4.30](Main unit only)
Ion balance Note 1	V	±15		
Ozone generation amount	ppm	0.03 or less (When measured at 300 mm apart from the nozzle outlet with a standard nozzle and 0.25 MPa air at primary side.)		
Media Note 2		Air		
Supply air flow rate	ℓ/min(ANR)	Approx. 100 (With **DTRY-NZR01NS** nozzle and 0.15 MPa air at primary side)		Approx. 50 (With **DTRY-NZL01NS** nozzle and 0.1 MPa air at primary side)
Operating air pressure range	MPa{kgf/cm²}[psi.]	0.02～0.25{0.2～2.5}[3～36](With **DTRY-NZR01NS** nozzle) 0.02～0.12{0.2～1.2}[3～17](With **DTRY-NZR02S** nozzle) 0.02～0.12{0.2～1.2}[3～17](With conductive urethane, Teflon or silicone tube) 0.05～0.25{0.5～2.5}[7～36](With **DTRY-NZR100ND**～**500ND** nozzles) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR20SW** nozzle) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR21SW** nozzle) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR01FT** nozzle) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR200SP** nozzle) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR100B**～**500B** nozzles) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR100L**～**200L** nozzles) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR100U** nozzle) 0.05～0.40{0.5～4.0}[7～58](With **DTRY-NZR100FMT**～**200FMT** nozzles)		0.05～0.5{0.5～5.0}[7～73]
Operating ambient temperature	°C[°F]	0～40[32～104] indoors		
Accessories		1 pc. power and signal cable (2 m) and 1 pc. ground wire (2 m)		1 pc. power and signal cable (2 m) and 1 pc. bracket

Notes 1: The ion balance value of the **DTRY-ELL01** is the value when the air flow rate is 150 ℓ/min(ANR).
2: Always turn on the power supply with supplying air.
Remarks 1: When using two or more Ionizers, mount them at least 10 mm apart. Closer mounting may cause a detrimental effect or detrimental ion balance.
2: Ion balance is measured by in-house test standard. Consult us for details.

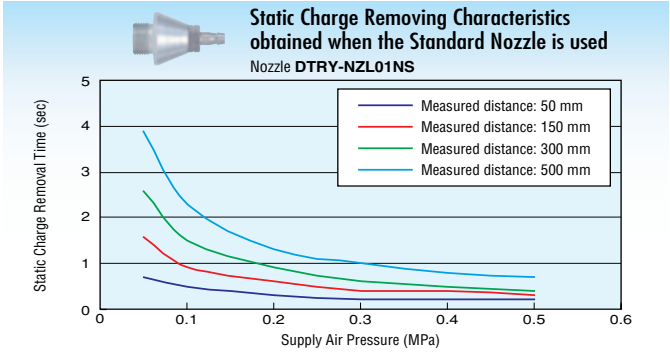
Graphs of Static Charge Removing Characteristics

(When using the standard nozzle) ※See pages ㉓～㉘ for Graphs of Static Charge Removing Characteristics when using the other nozzles.

Blow Type DTRY-ELB01



Compact Blow Type DTRY-ELL01



1 MPa = 145psi.

Controller

Item \ Model		DTRY-ELC11
Power supply		24 VDC ± 5%
Consumption current	mA	410
Outer dimensions	mm	222 (L) × 60 (W) × 135 (H) (Main unit only)
Mass	g[oz.]	830[29.28](Main unit only)
Media		Air
Max. flow rate	ℓ/min(ANR)	150 (0.7 MPa at primary-side pressure and 0.5 MPa at secondary-side pressure)
Operating pressure adjusting range	MPa{kgf/cm²}[psi.]	0.02～0.5{0.2～5.0}[3～73]
Proof pressure	MPa{kgf/cm²}[psi.]	1.5{15}[218]
Filter capacity	Filtering particle diameter μm	0.01
	Filtering efficiency %	99.99
Operating ambient temperature	°C[°F]	5～45[41～113] indoors
Accessories		1 pc. connection cable between controller and Ionizer (1.5 m)

Notes: Pay attention to maximum flow rate and operating pressure adjusting range when using the controller.
Remarks: The Ionizer is a stand-alone unit. However, the use with the controller enables control of both power supply and air.

Order code

BLOW TYPE

■Main Unit

●1-head type
DTRY-ELB01

Caution The main unit cannot be operated alone.
Always use it with a nozzle.

●2-head type
DTRY-ELB02

Caution The main unit cannot be operated alone.
Always use it with nozzles.

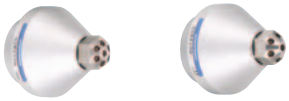
■Nozzles for Blow Type

●Standard nozzle
DTRY-NZR01NS

●Nozzles with flexible tubes
DTRY-NZR100ND (100 mm)
DTRY-NZR200ND (200 mm)
DTRY-NZR300ND (300 mm)
DTRY-NZR400ND (400 mm)
DTRY-NZR500ND (500 mm)

●Stainless steel pipe nozzle (120 mm)
DTRY-NZR02S

●Shower nozzles
DTRY-NZR20SW (60° type)
DTRY-NZR21SW (90° type)



●Flat nozzle
DTRY-NZR01FT

●Straight bar nozzles
DTRY-NZR100B (Nominal size: 100 mm)
DTRY-NZR200B (Nominal size: 200 mm)
DTRY-NZR300B (Nominal size: 300 mm)
DTRY-NZR400B (Nominal size: 400 mm)
DTRY-NZR500B (Nominal size: 500 mm)

●L-shaped bar nozzles
DTRY-NZR100L (Nominal size: 100 mm)
DTRY-NZR200L (Nominal size: 200 mm)

●Free-mounting L-shaped bar nozzles
DTRY-NZR100FMT
(Nominal size: 100 mm)
DTRY-NZR200FMT
(Nominal size: 200 mm)

●U-shaped bar nozzle
DTRY-NZR100U

●Spiral bar nozzle
DTRY-NZR200SP

■Option

●Bracket
(For straight bar nozzle)
DTRY-ELQ02

Caution: Dedicated for blow type

■Common Options for Blow Type and Compact Blow Type

●Shower nozzle unit for flexible tube
DTRY-ADN-SW60 (60° type)
DTRY-ADN-SW90 (90° type)

●Flat nozzle unit for flexible tube
DTRY-ADN-FT01

●Bar nozzle unit for flexible tube
DTRY-ADN-100B (Nominal size: 100 mm)
DTRY-ADN-200B (Nominal size: 200 mm)

●Conductive urethane tube (500 mm)
DTRY-ADN-U

Outer diameter: ϕ6
Inner diameter: ϕ4

●Teflon tube (500 mm)
DTRY-ADN-F

Outer diameter: ϕ7
Inner diameter: ϕ5

●Silicone tube (500 mm)
DTRY-ADN-S

Outer diameter: ϕ7
Inner diameter: ϕ4

Note 1: The tube is a consumable item; periodic replacement is required.
: The **DTRY-ADN-S** and **DTRY-ADN-F** cannot be used for the earlier type standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.
Remarks 1: Use Teflon tube for endurance-oriented, or silicon tube for flexibility-oriented.
2: 20 m or 100 m roll of conductive urethane tubes is available.
Order code: **U6A-B** (20 m)
U6A-B-100 (100 m)

COMPACT BLOW TYPE

■Main Unit

●1-head type
DTRY-ELL01

Caution The main unit cannot be operated alone.
Always use it with a nozzle.

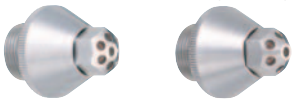
■Nozzles for Compact Blow Type

●Standard nozzle
DTRY-NZL01NS

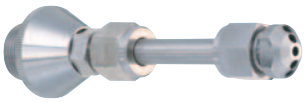
●Nozzles with flexible tubes
DTRY-NZL100ND (100 mm)
DTRY-NZL200ND (200 mm)
DTRY-NZL300ND (300 mm)
DTRY-NZL400ND (400 mm)
DTRY-NZL500ND (500 mm)

●Stainless steel pipe nozzle (120 mm)
DTRY-NZL02S

●Shower nozzles
DTRY-NZL20SW (60° type)
DTRY-NZL21SW (90° type)

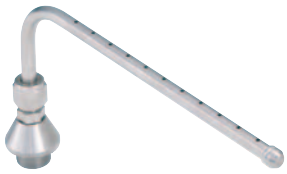


●Flat nozzle
DTRY-NZL01FT



●Straight bar nozzles
DTRY-NZL100B (Nominal size: 100 mm)
DTRY-NZL200B (Nominal size: 200 mm)
DTRY-NZL300B (Nominal size: 300 mm)
DTRY-NZL400B (Nominal size: 400 mm)
DTRY-NZL500B (Nominal size: 500 mm)

●L-shaped bar nozzle
DTRY-NZL100L (Nominal size: 100 mm)



●Free-mounting L-shaped bar nozzles
DTRY-NZL100FMT
(Nominal size: 100 mm)
DTRY-NZL200FMT
(Nominal size: 200 mm)

●U-shaped bar nozzle
DTRY-NZL100U

●Spiral bar nozzle
DTRY-NZL200SP

●Conductive urethane tube holder
DTRY-NZR31

For application examples,
refer to page 8

Caution: Dedicated use for conductive urethane tube

●AC adapter
DTRY-ELC02
(For **DTRY-ELL01, DTRY-ELB01 & 02**)

Caution: The AC adapter cannot be used for the fan type, turbo-flow fan type, wide-flow fan type or controllers.

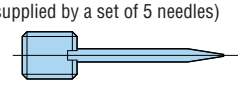
Rating
Input : 100 VAC
50/60 Hz 10.1VA
Output: 24 VDC 100mA

●Controller
DTRY-ELC11

●AC adapter
DTRY-ELC03

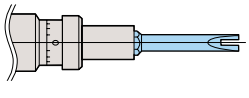
Rating
Input : 100 VAC thru 240 VAC
50/60 Hz 40VA
Output: 24 VDC 750mA

●Tungsten discharging needle for replacement (supplied by a set of 5 needles)
DTRY-ELB11

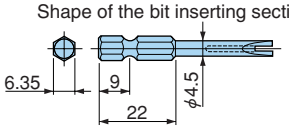


Caution Dedicated for **DTRY-ELL01, DTRY-ELB01 & 02.**

●Dedicated tool for replacing discharging needle (Made to order)
Note: Bit alone is available.
DTRY-ELB21



Shape of the bit inserting section



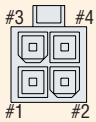
BLOW TYPE Dimensions (mm)

BLOW TYPE

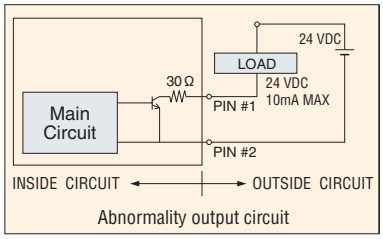
Main Unit

●1-head type
DTRY-ELB01

Power and signal cable (Accessory)
●Input power: +24 VDC
●Connector pin location and lead wire colors: #1 [White]: Abnormality output
#2 [Black] : Output ground
#3 [Red] : Input power +24 VDC
#4 [Green]: Ground for power

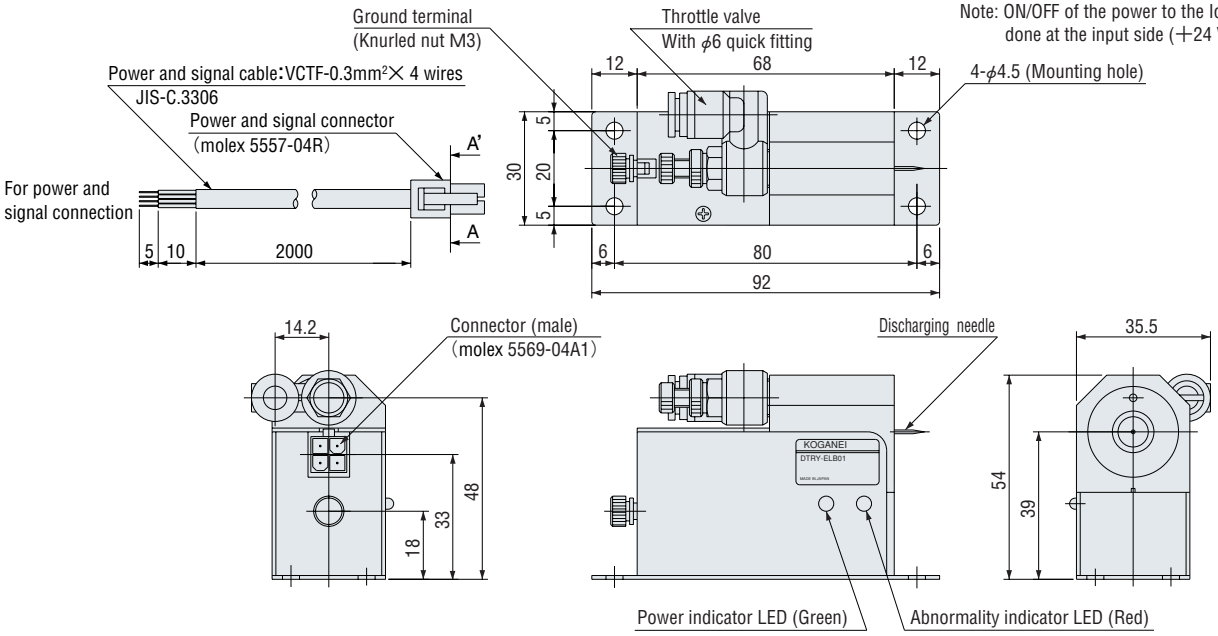


Pin location of molex 5557-04R (female)



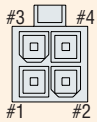
Abnormality output circuit

Note: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).

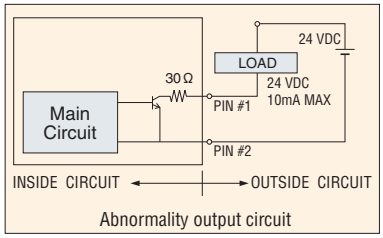


●2-head type
DTRY-ELB02

Power and signal cable (Accessory)
●Input power: +24 VDC
●Connector pin location and lead wire colors: #1 [White]: Abnormality output
#2 [Black] : Output ground
#3 [Red] : Input power +24 VDC
#4 [Green]: Ground for Power

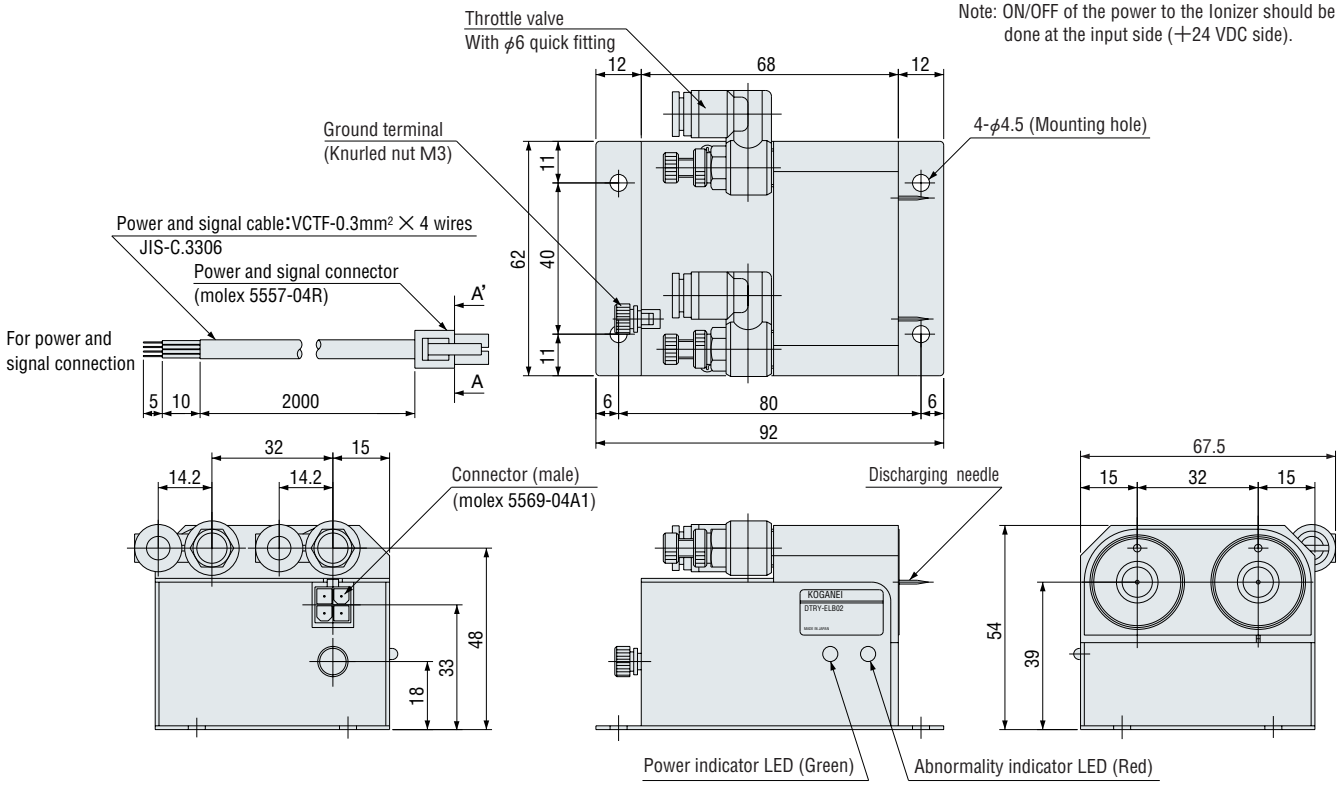


Pin location of molex 5557-04R (female)



Abnormality output circuit

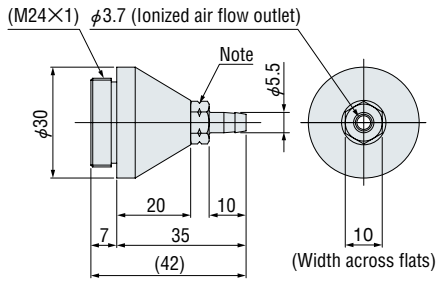
Note: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).



BLOW TYPE

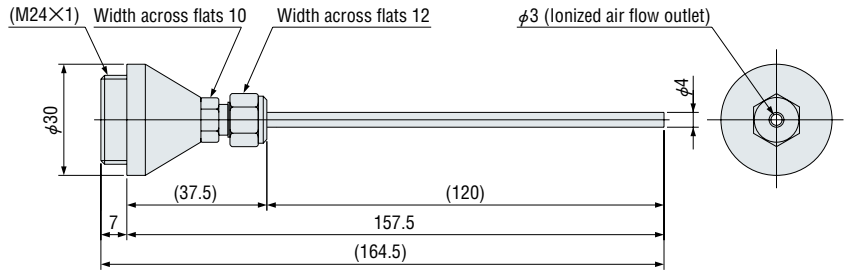
Nozzles

●Standard nozzle **DTRY-NZR01NS**

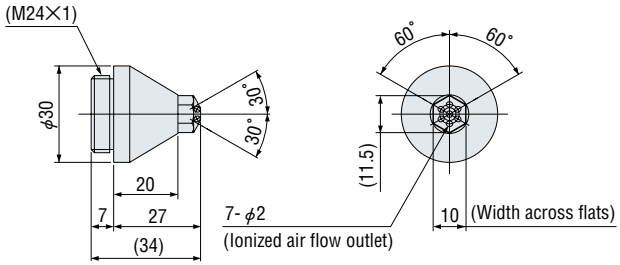


Note: The standard nozzle **DTRY-NZR01NS** has a groove in the hexagonal section, to be distinguished from **DTRY-NZR01S** (earlier model).

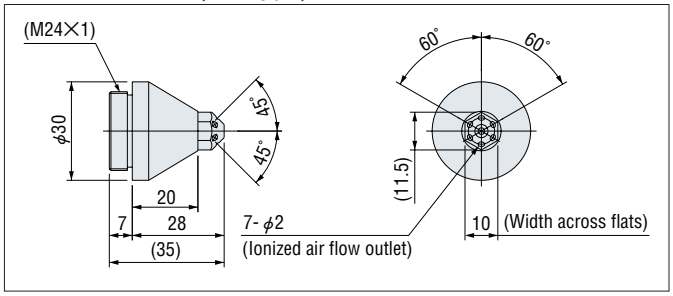
●Stainless steel pipe nozzle **DTRY-NZR02S**



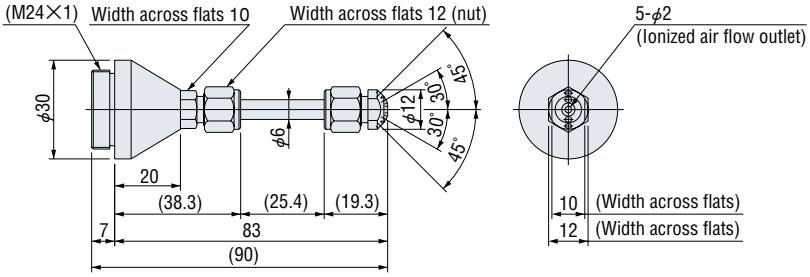
●Shower nozzle (60° type) **DTRY-NZR20SW**



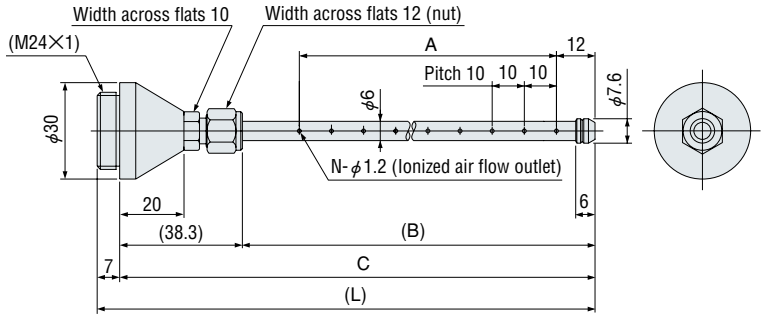
●Shower nozzle (90° type) **DTRY-NZR21SW**



●Flat nozzle **DTRY-NZR01FT**



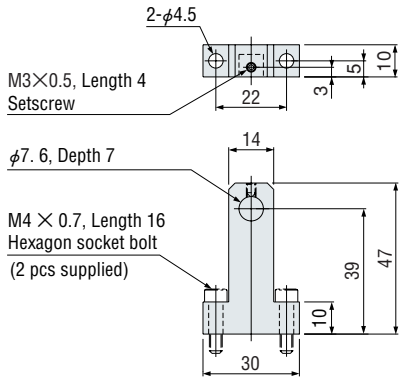
●Straight bar nozzle **DTRY-NZR□00B**



Model	A	B	C	L	N
DTRY-NZR100B	100	129.7	168	175	11
DTRY-NZR200B	200	229.7	268	275	21
DTRY-NZR300B	300	329.7	368	375	31
DTRY-NZR400B	400	429.7	468	475	41
DTRY-NZR500B	500	529.7	568	575	51

Bracket for straight bar nozzle **DTRY-ELQ02**

●Supports the tip of straight bar nozzle

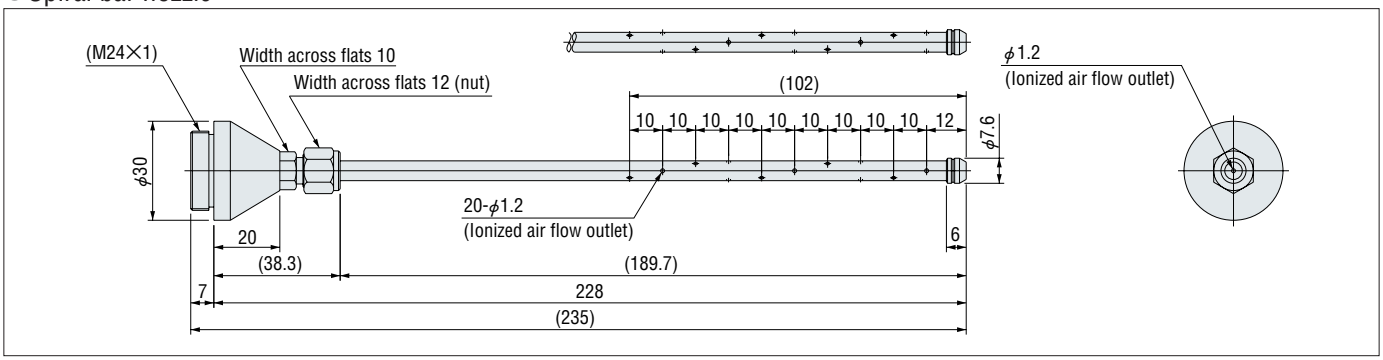


Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

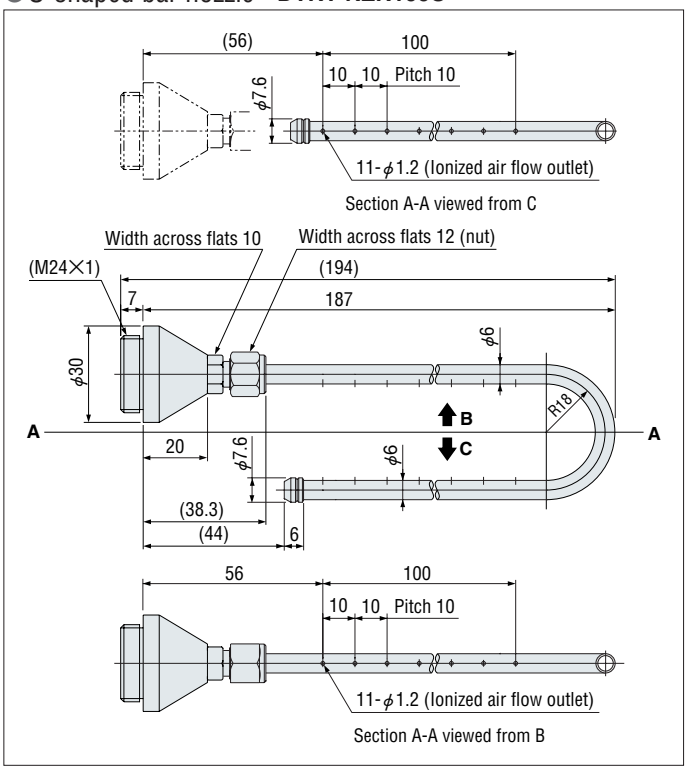
BLOW TYPE

■Nozzles

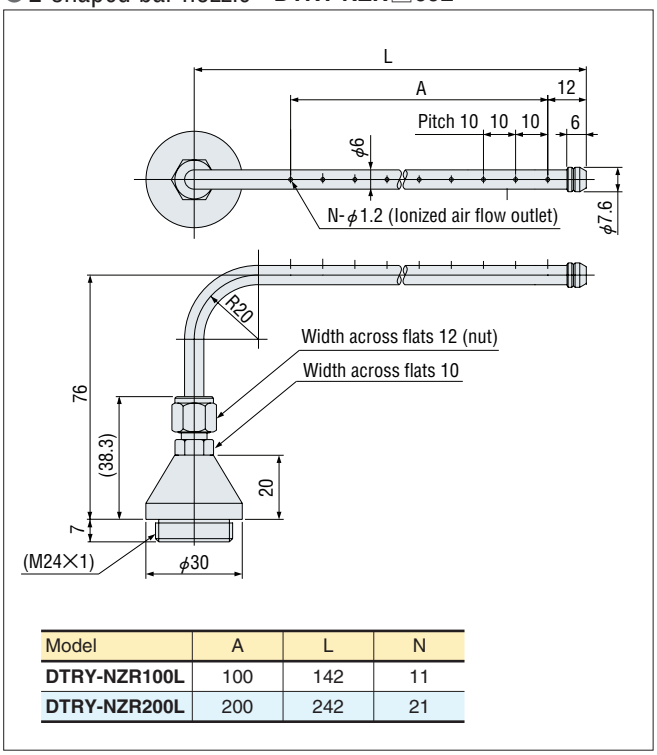
●Spiral bar nozzle **DTRY-NZR200SP**



●U-shaped bar nozzle **DTRY-NZR100U**

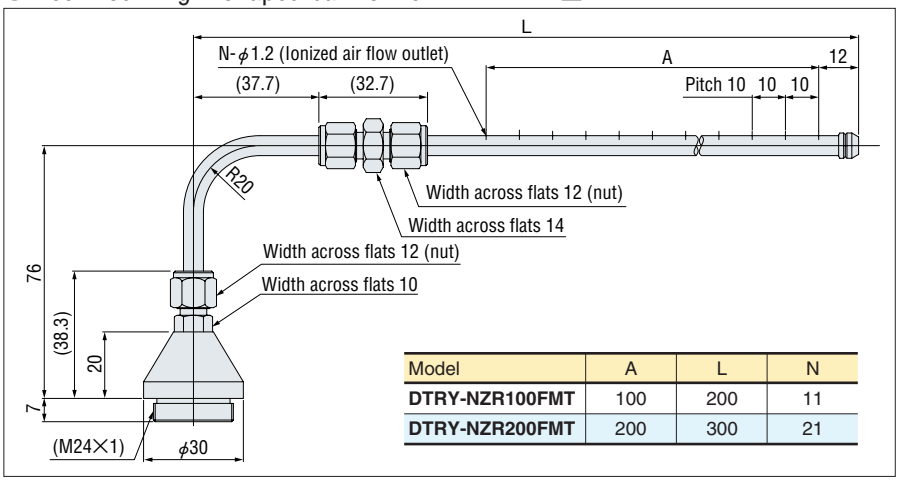


●L-shaped bar nozzle **DTRY-NZR□00L**



Model	A	L	N
DTRY-NZR100L	100	142	11
DTRY-NZR200L	200	242	21

●Free-mounting L-shaped bar nozzle **DTRY-NZR□00FMT**



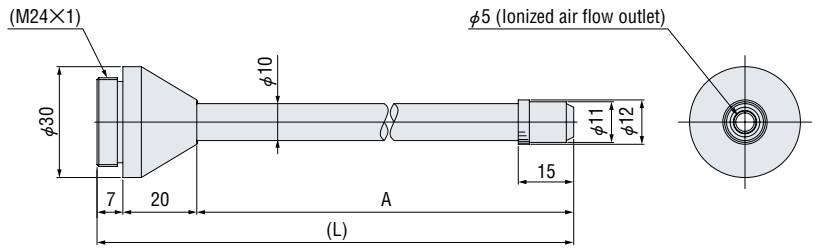
Model	A	L	N
DTRY-NZR100FMT	100	200	11
DTRY-NZR200FMT	200	300	21

Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

BLOW TYPE

Nozzles

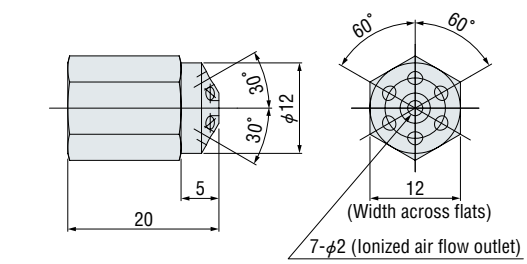
●Flexible tube nozzle **DTRY-NZR□00ND**



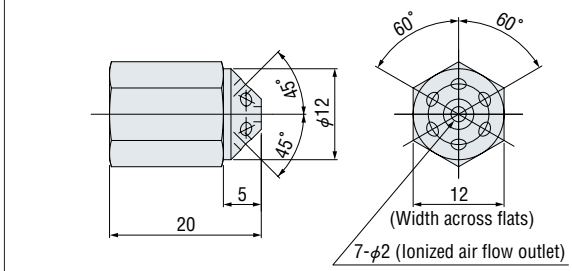
Model	A	L
DTRY-NZR100ND	102	129
DTRY-NZR200ND	202	229
DTRY-NZR300ND	302	329
DTRY-NZR400ND	402	429
DTRY-NZR500ND	502	529

Optional nozzle units for flexible tube (use the units at the tip of a flexible tube for changing a nozzle)

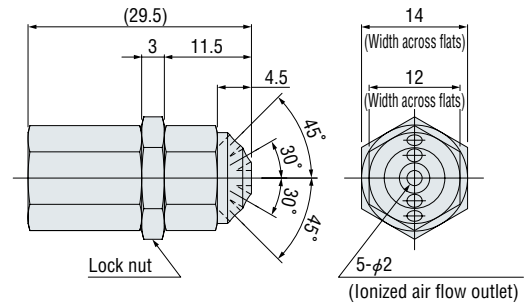
●Shower nozzle unit for flexible tube (60° type) **DTRY-ADN-SW60**



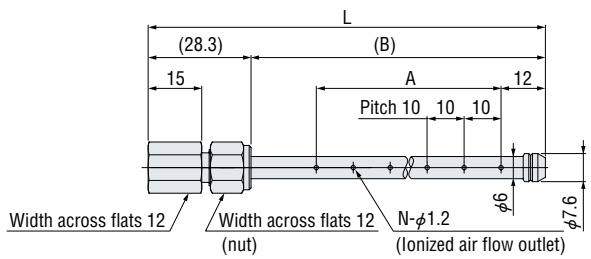
●Shower nozzle unit for flexible tube (90° type) **DTRY-ADN-SW90**



●Flat nozzle unit for flexible tube **DTRY-ADN-FT01**



●Bar nozzle unit for flexible tube **DTRY-ADN-□00B**



Model	A	B	L	N
DTRY-ADN-100B	100	129.7	158	11
DTRY-ADN-200B	200	229.7	258	21

Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

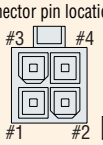
COMPACT BLOW TYPE Dimensions (mm)

COMPACT BLOW TYPE

Main Unit

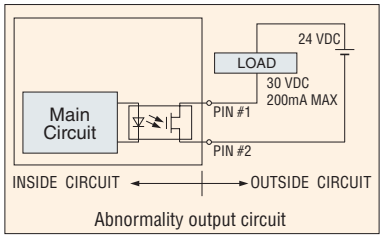
●1-head type
DTRY-ELL01

Power and signal cable (Accessory)
●Input power: +24 VDC
●Connector pin location and lead wire colors:

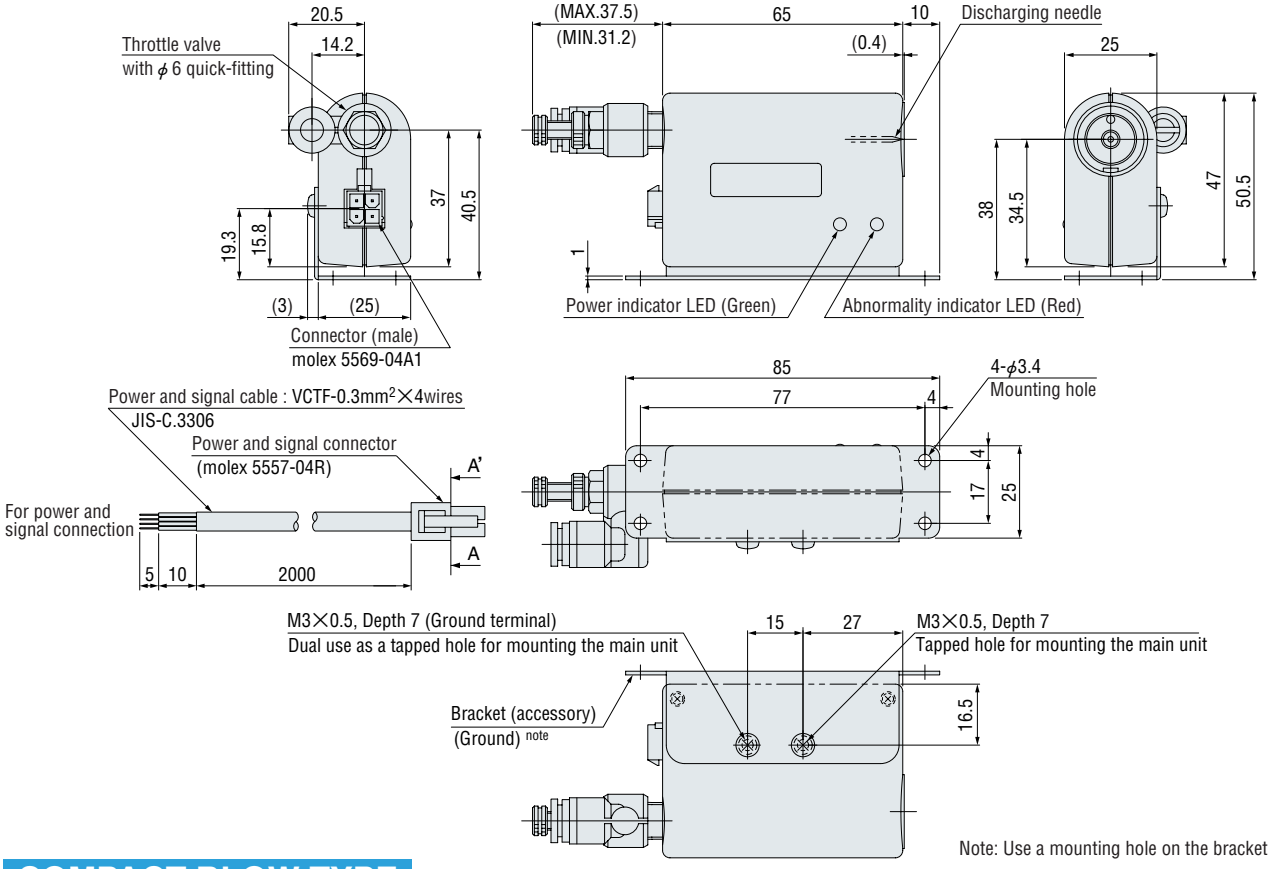


#1 [White] :
#2 [Black] : Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green]: Ground for power
Viewed from A-A'

Pin location of molex 5557-04R (female)



Abnormality output circuit

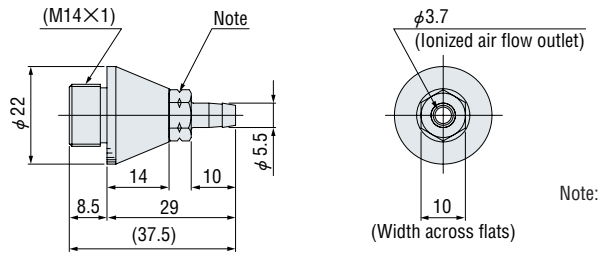


Note: Use a mounting hole on the bracket for grounding.

COMPACT BLOW TYPE

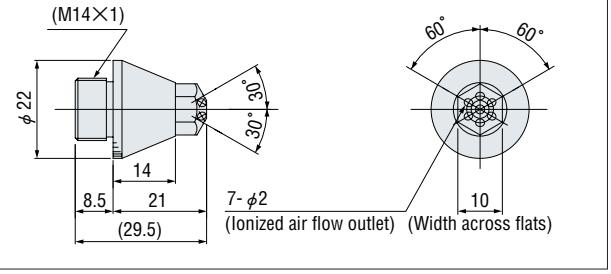
Nozzles

●Standard nozzle **DTRY-NZL01NS**

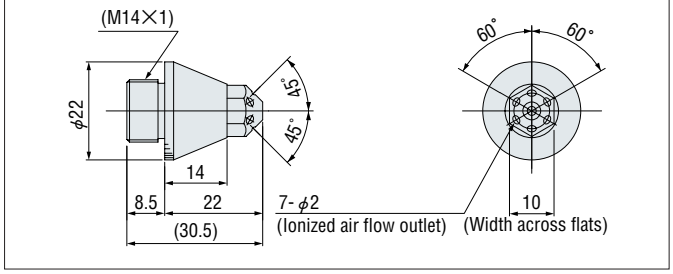


Note: The standard nozzle **DTRY-NZL01NS** has a groove in the hexagonal section, to be distinguished from **DTRY-NZL01S** (earlier model).

●Shower nozzle (60° type) **DTRY-NZL20SW**



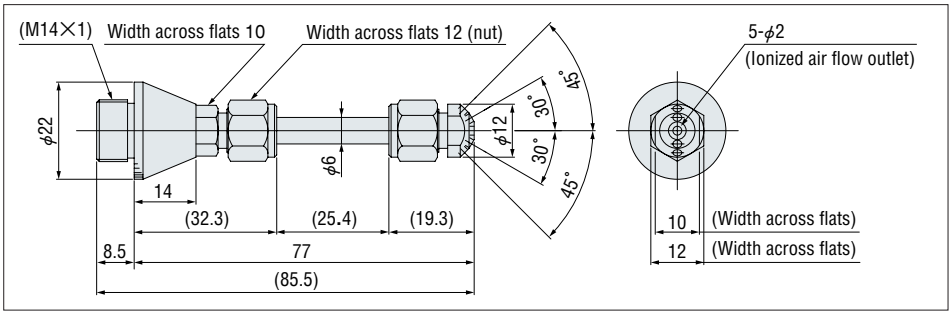
●Shower nozzle (90° type) **DTRY-NZL21SW**



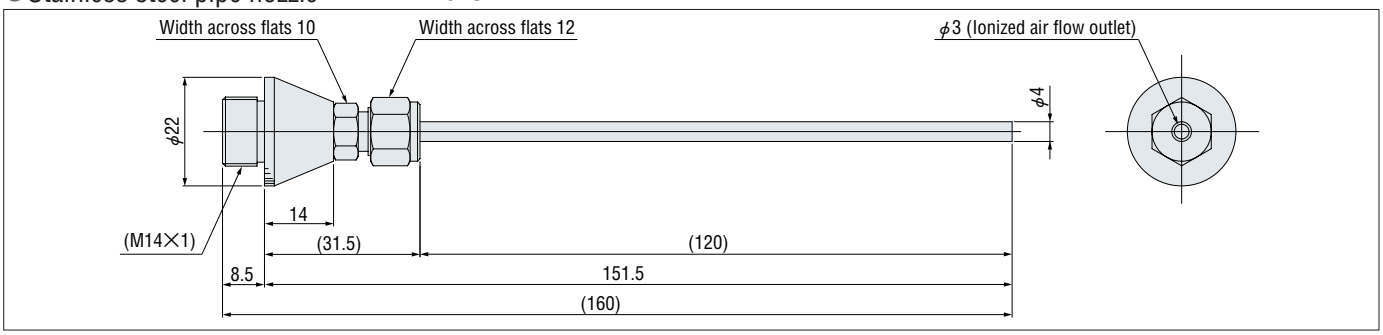
COMPACT BLOW TYPE

Nozzles

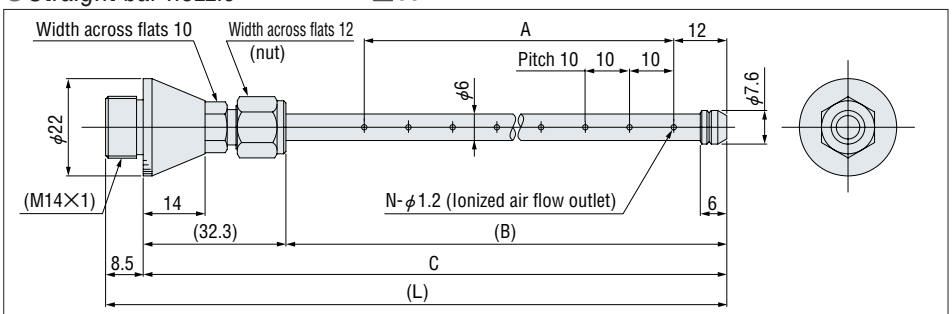
●Flat nozzle **DTRY-NZL01FT**



●Stainless steel pipe nozzle **DTRY-NZL02S**

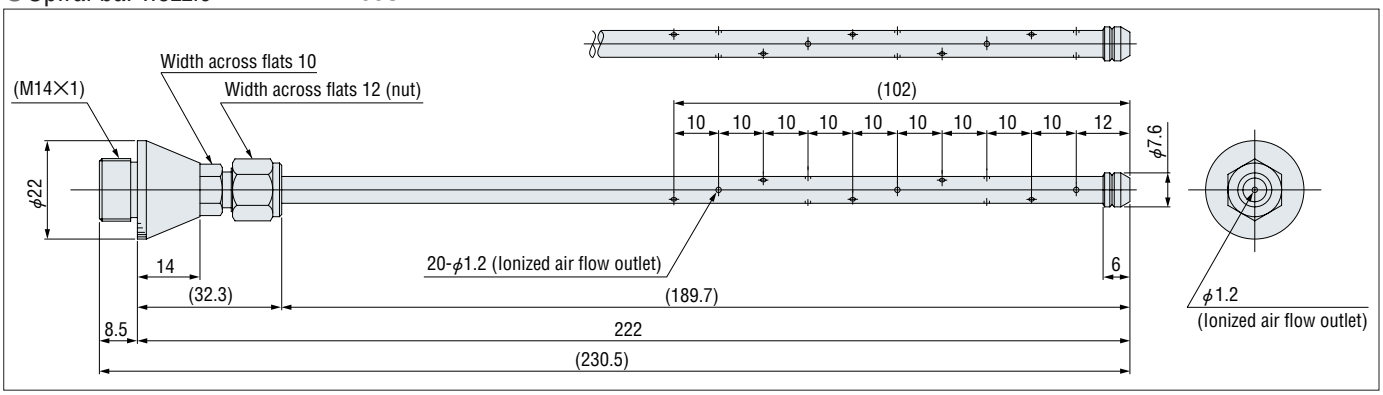


●Straight bar nozzle **DTRY-NZL□00B**



Model	A	B	C	L	N
DTRY-NZL100B	100	129.7	162	170.5	11
DTRY-NZL200B	200	229.7	262	270.5	21
DTRY-NZL300B	300	329.7	362	370.5	31
DTRY-NZL400B	400	429.7	462	470.5	41
DTRY-NZL500B	500	529.7	562	570.5	51

●Spiral bar nozzle **DTRY-NZL200SP**

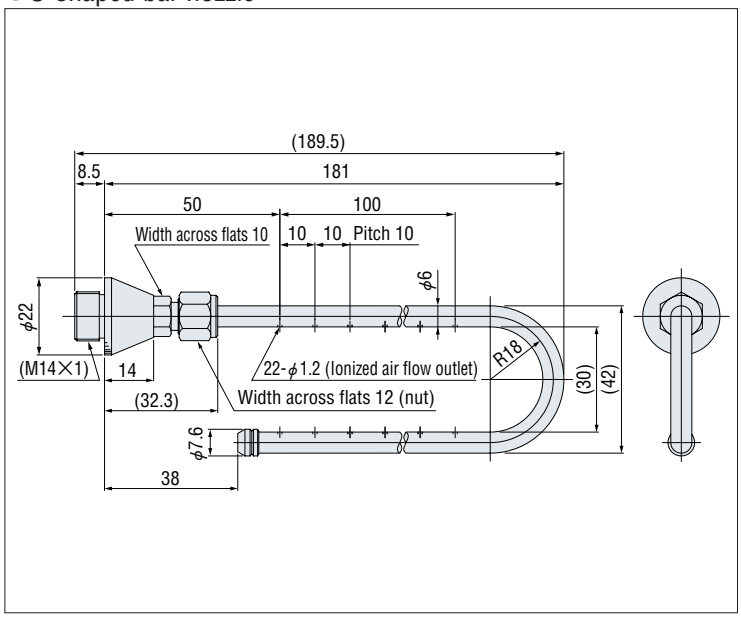


Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

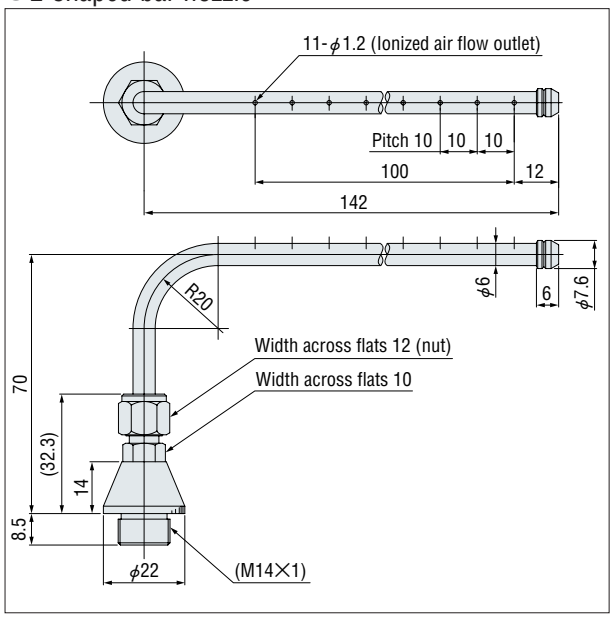
COMPACT BLOW TYPE

■Nozzles

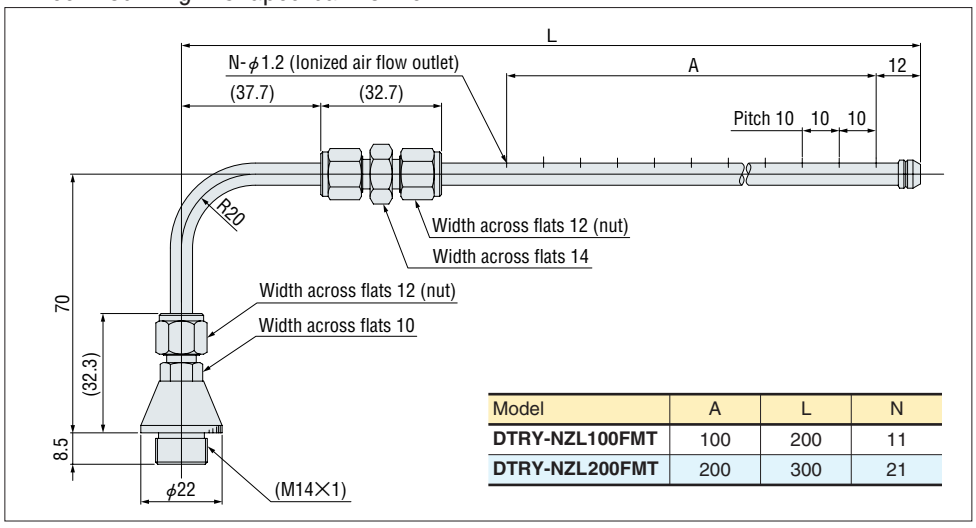
●U-shaped bar nozzle **DTRY-NZL100U**



●L-shaped bar nozzle **DTRY-NZL100L**

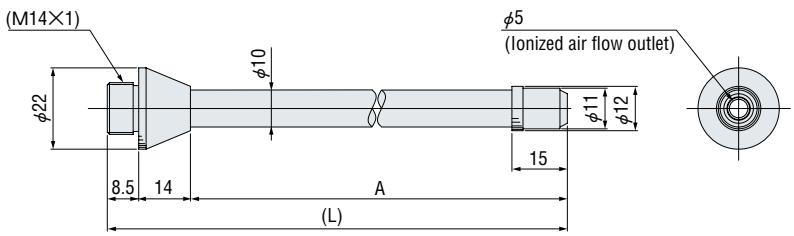


●Free-mounting L-shaped bar nozzle **DTRY-NZL□00FMT**



Model	A	L	N
DTRY-NZL100FMT	100	200	11
DTRY-NZL200FMT	200	300	21

●Flexible tube nozzle **DTRY-NZL□00ND**



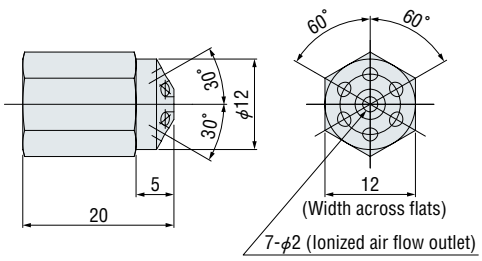
Model	A	L
DTRY-NZL100ND	102	124.5
DTRY-NZL200ND	202	224.5
DTRY-NZL300ND	302	324.5
DTRY-NZL400ND	402	424.5
DTRY-NZL500ND	502	524.5

Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

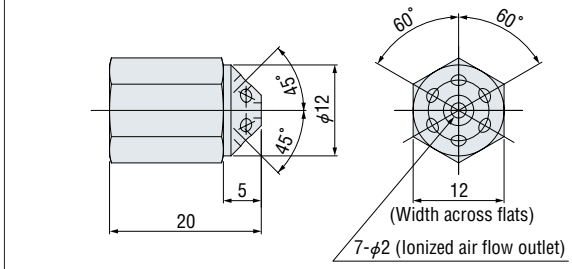
COMPACT BLOW TYPE

■Optional nozzle units for flexible tube (use the units at the tip of a flexible tube for changing a nozzle)

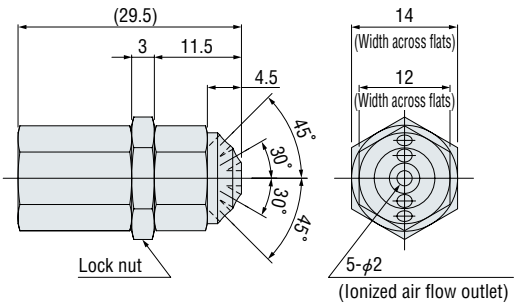
●Shower nozzle unit for flexible tube (60° type) **DTRY-ADN-SW60**



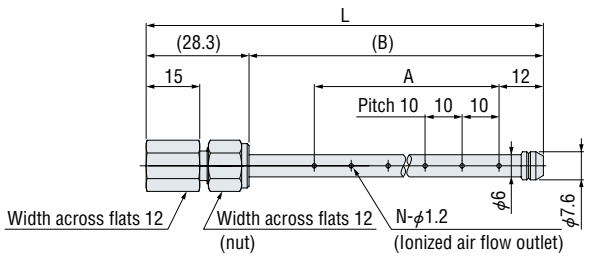
●Shower nozzle unit for flexible tube (90° type) **DTRY-ADN-SW90**



●Flat nozzle unit for flexible tube **DTRY-ADN-FT01**



●Bar nozzle unit for flexible tube **DTRY-ADN-□00B**



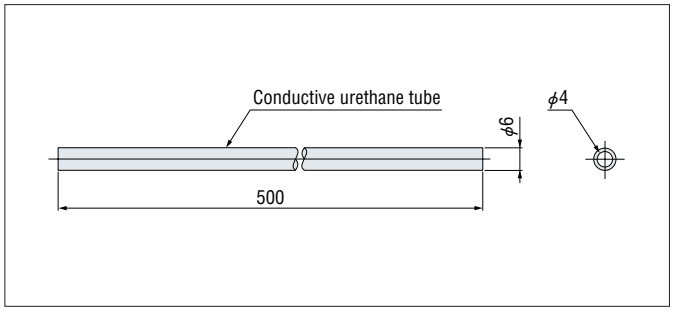
Model	A	B	L	N
DTRY-ADN-100B	100	129.7	158	11
DTRY-ADN-200B	200	229.7	258	21

Remarks: Loosen the nut to adjust the direction of the Ionized air flow outlet.
Note: Do not contact the nozzle with a grounded conductive object.
The abnormality indicator LED may turn on.

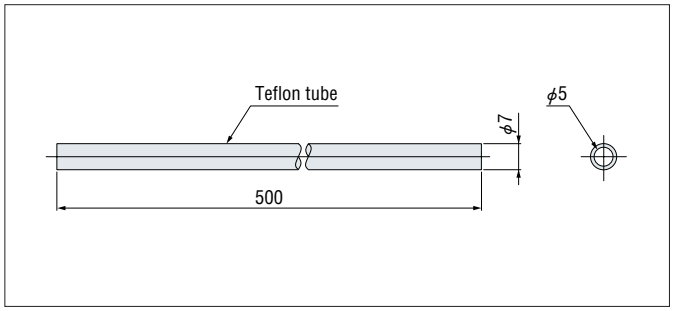
Dimensions of Common Options for BLOW TYPE and COMPACT BLOW TYPE (mm)

TUBES

●Conductive urethane tube **DTRY-ADN-U**

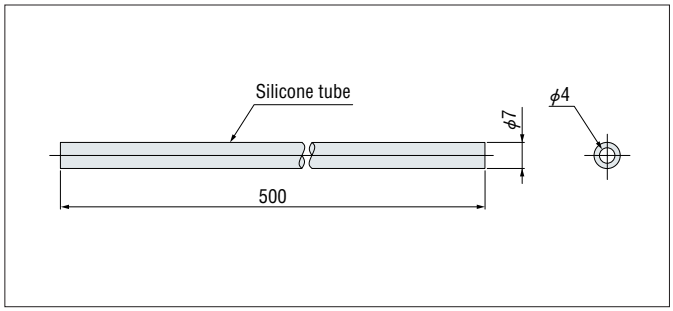


●Teflon tube **DTRY-ADN-F**



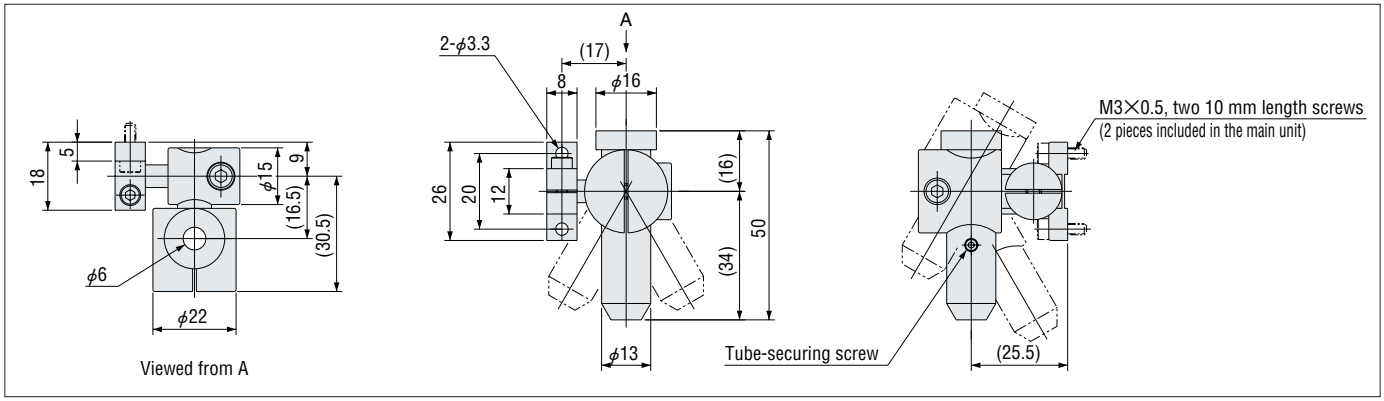
Note: The **DTRY-ADN-F** cannot be used for the earlier standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.

●Silicone tube **DTRY-ADN-S**



Note: The **DTRY-ADN-S** cannot be used for the earlier standard nozzles **DTRY-NZR01S** and **DTRY-NZL01S**.

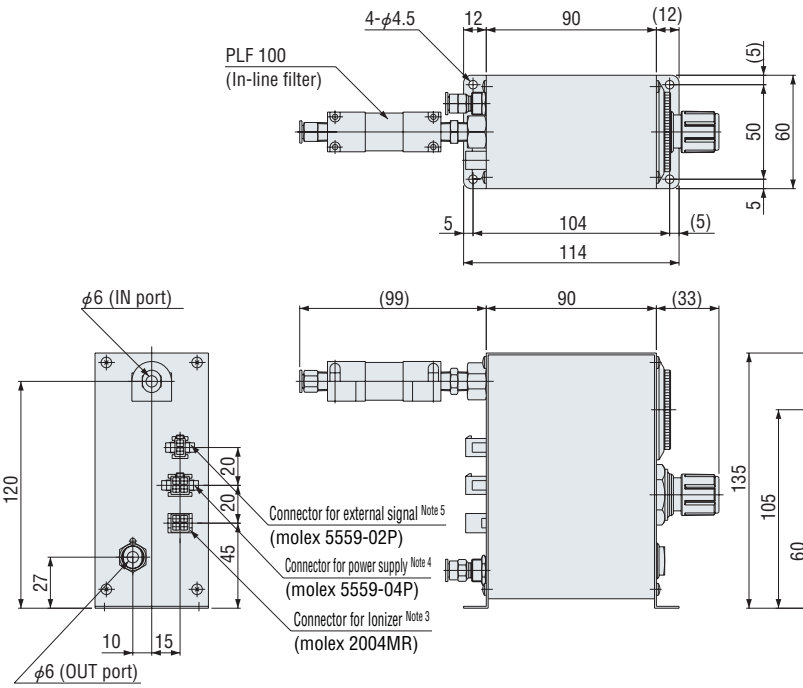
■Conductive urethane tube holder **DTRY-NZR31**

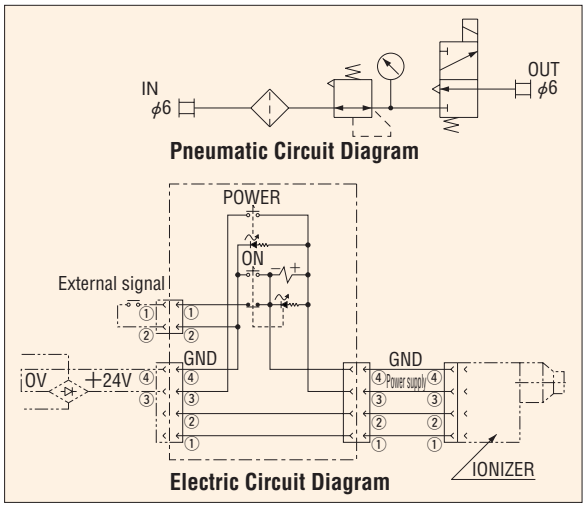


Note: The tube holder is the dedicated model for the conductive urethane tube **DTRY-ADN-U**. It cannot be used with the Teflon tube **DTRY-ADN-F** and the silicone tube **DTRY-ADN-S**.

CONTROLLER (For Blow Type and Compact Blow Type)

● **DTRY-ELC11**





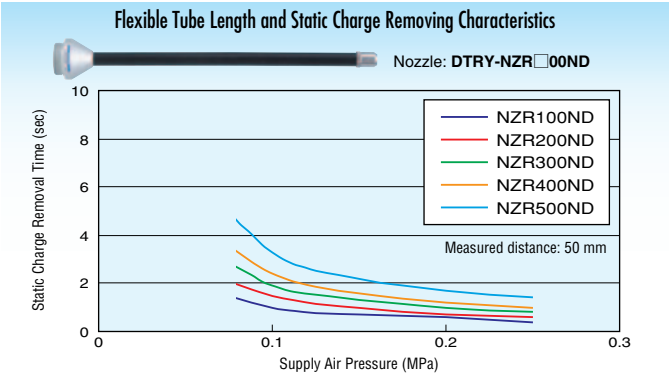
Notes:
1. The Controller is for the Blow Type Ionizer.
2. Provide 24 VDC power with 410mA or larger. For an AC adapter, use the **DTRY-ELC03**.
3. The cable used to connect the controller and the Ionizer is included in the product.
4. For a power supply cable, use the power and signal cable in the Ionizer accessories.
5. Separately purchase a cable for external signal.
6. Ground the controller power supply and the Ionizer separately.

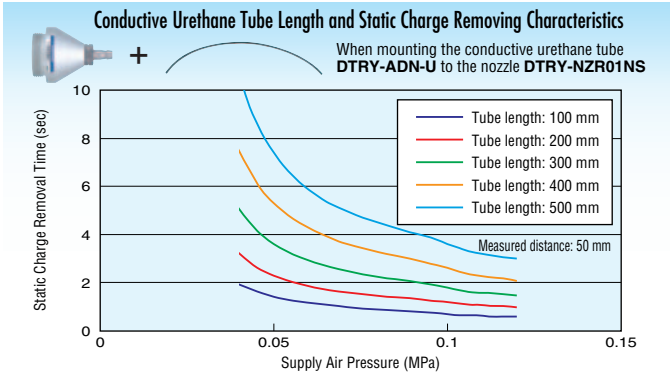
Graphs of Static charge Removing Characteristics (Blow Type)

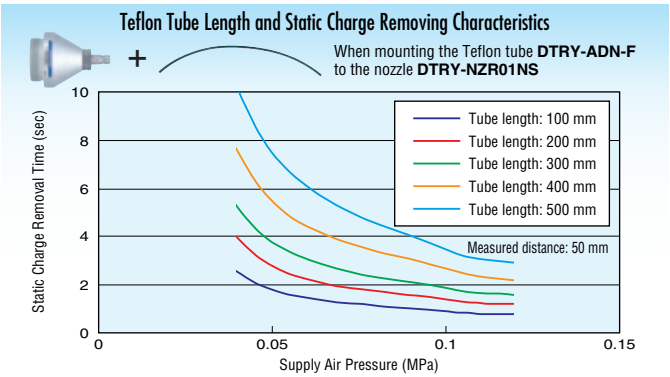
The following graphs show static charge removing characteristics obtained when using the blow type Ionizer, DTRY-ELB01 (1-head type) with typical nozzles. Using the proper item to the proper place enables static charge removal with superior ion balance.

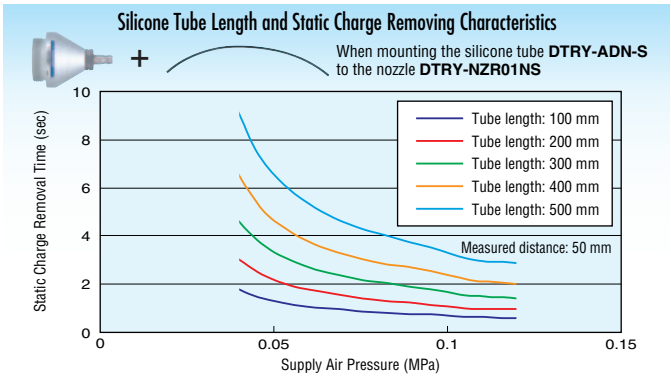
※Static charge removing characteristics are measured by in-house test standard.

※For the graph of static charge removing characteristics obtained when using the standard nozzle **DTRY-NZR01NS**, see page ⑩.





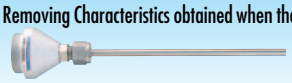




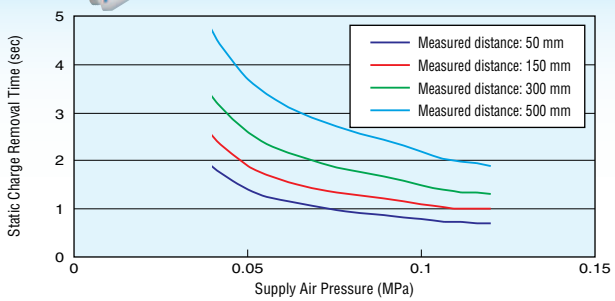
1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

Static Charge Removing Characteristics obtained when the Nozzle with Stainless Steel Pipe is used

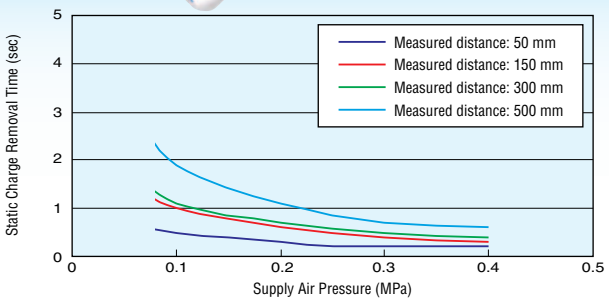


Nozzle : **DTRY-NZR02S**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

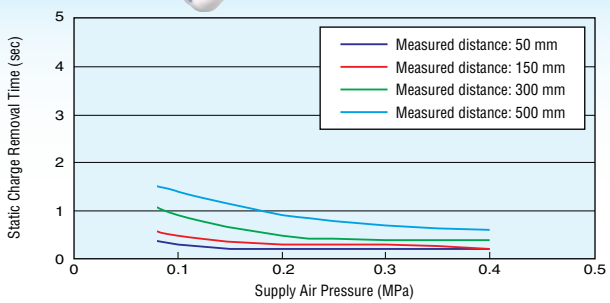
Static Charge Removing Characteristics obtained when Shower Nozzle (60° type) is used

Nozzle : **DTRY-NZR20SW**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

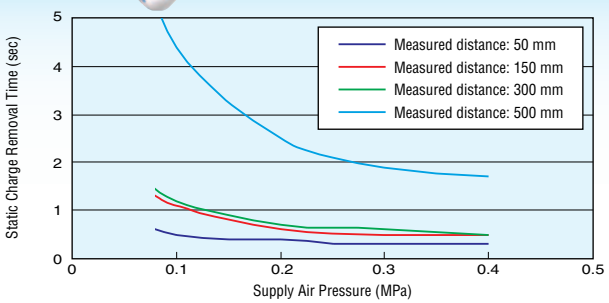
Static Charge Removing Characteristics obtained when Shower Nozzle (90° type) is used

Nozzle : **DTRY-NZR21SW**

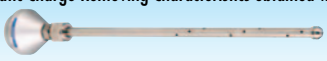

Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Flat Nozzle is used

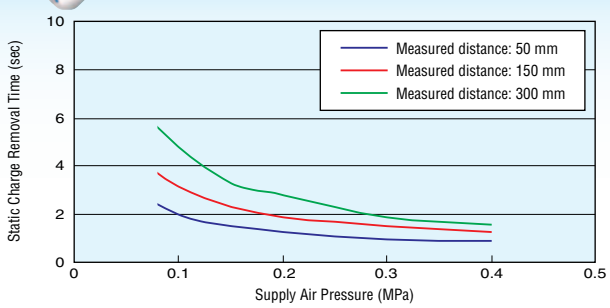
Nozzle : **DTRY-NZR01FT**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Spiral Bar Nozzle is used

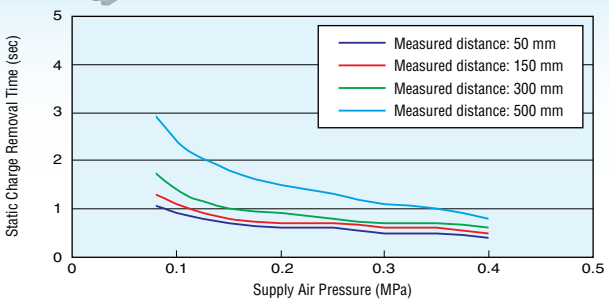


Nozzle : **DTRY-NZR200SP**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm

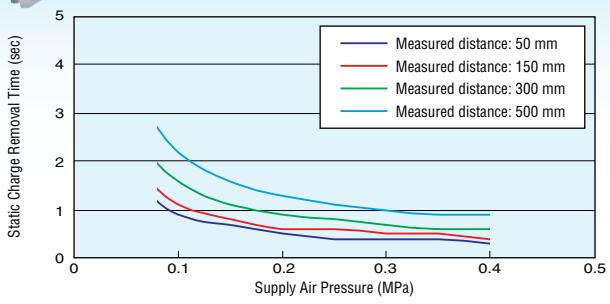
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZR100B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

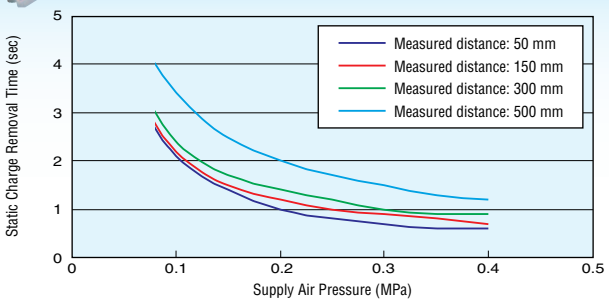
Static Charge Removimg Characteristics obtained when the Straight Bar Nozzle (200 mm) is used

Nozzle : **DTRY-NZR200B**

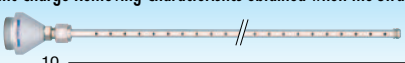

Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (300 mm) is used

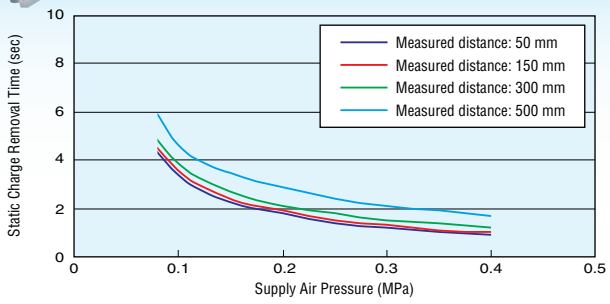
Nozzle : **DTRY-NZR300B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (400 mm) is used

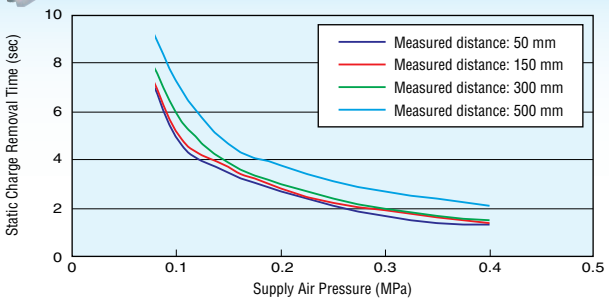


Nozzle : **DTRY-NZR400B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (500 mm) is used

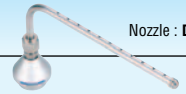
Nozzle : **DTRY-NZR500B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

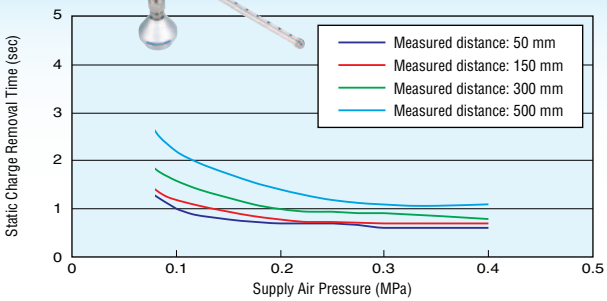
1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

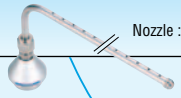
Static Charge Removing Characteristics obtained when the L-shape Bar Nozzle (100 mm) is used



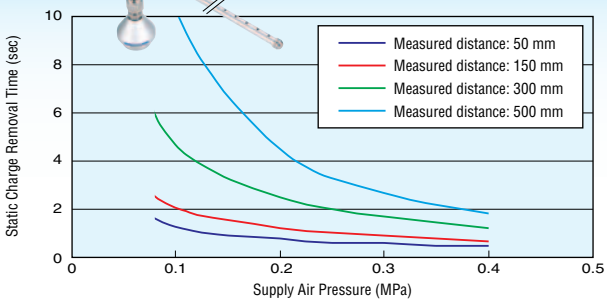
Nozzle : **DTRY-NZR100L**


Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

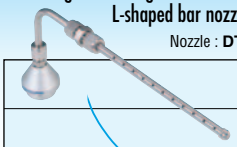
Static Charge Removing Characteristics obtained when the L-shape Bar Nozzle (200 mm) is used



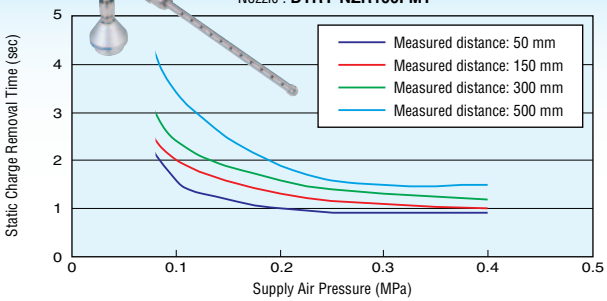
Nozzle : **DTRY-NZR200L**


Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

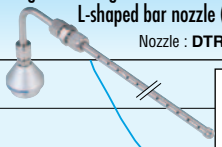
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (100 mm) is used



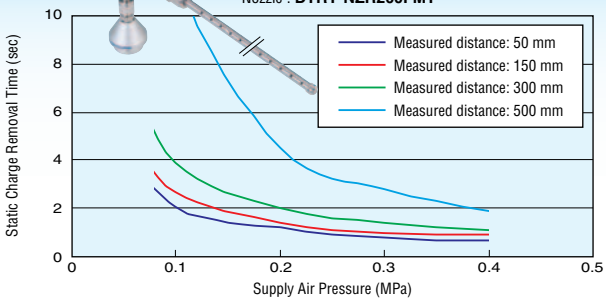
Nozzle : **DTRY-NZR100FMT**


Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (200 mm) is used

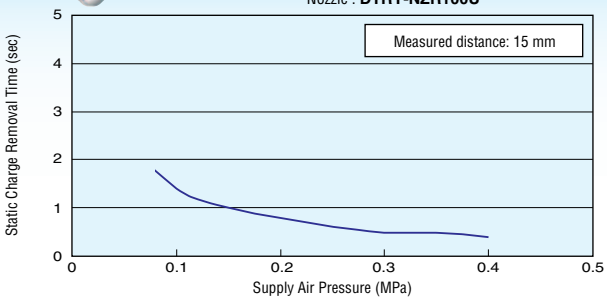


Nozzle : **DTRY-NZR200FMT**


Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

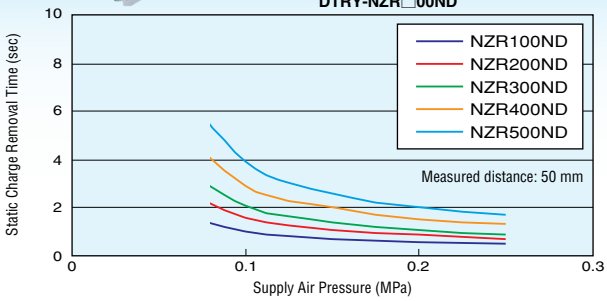
Static Charge Removing Characteristics obtained when the U-shaped Bar Nozzle is used

Nozzle : **DTRY-NZR100U**



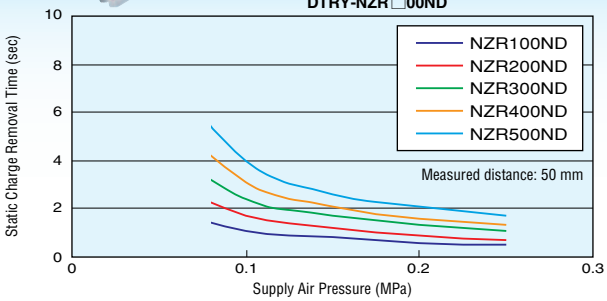
Flexible Tube Length and Static Charge Removing Characteristics (Shower Nozzle 60°Type)

When mounting the nozzle unit **DTRY-ADN-SW60** to the nozzle **DTRY-NZR□00ND**



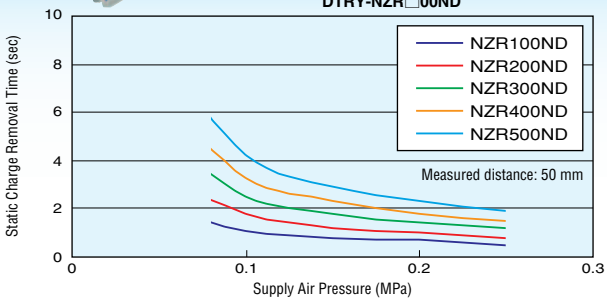
Flexible Tube Length and Static Charge Removing Characteristics (Shower Nozzle 90°Type)

When mounting the nozzle unit **DTRY-ADN-SW90** to the nozzle **DTRY-NZR□00ND**



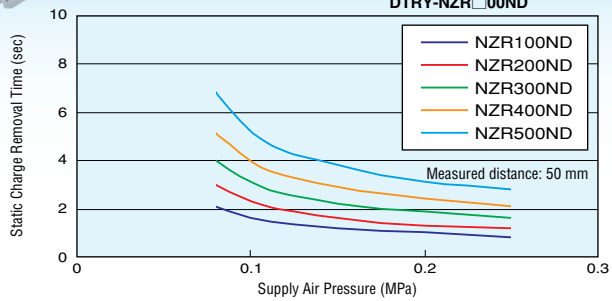
Flexible Tube Length and Static Charge Removing Characteristics (Flat Nozzle)

When mounting the nozzle unit **DTRY-ADN-FT01** to the nozzle **DTRY-NZR□00ND**



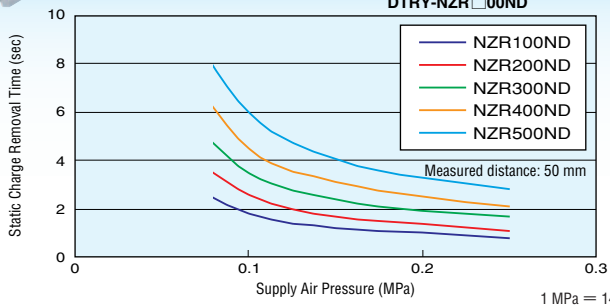
Flexible Tube Length and Static Charge Removing Characteristics (Straight Bar Nozzle 100 mm)

When mounting the nozzle unit **DTRY-ADN-100B** to the nozzle **DTRY-NZR□00ND**



Flexible Tube Length and Static Charge Removing Characteristics (Straight Bar Nozzle 200 mm)

When mounting the nozzle unit **DTRY-ADN-200B** to the nozzle **DTRY-NZR□00ND**



1 MPa = 145psi.

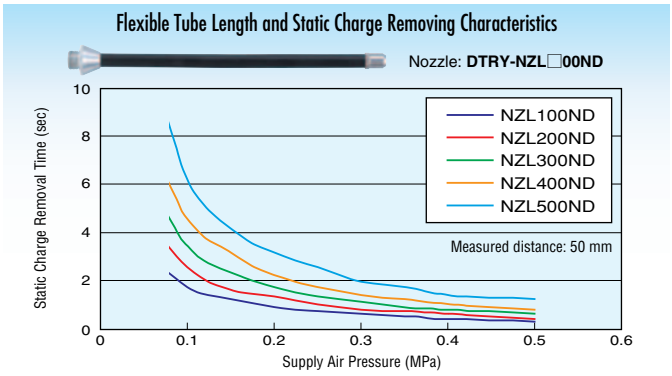
Note: The static charge removing characteristics are measured by in-house test standard.

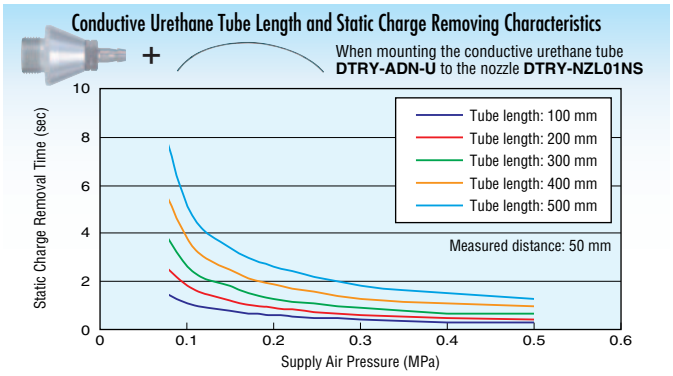
Graphs of Static charge Removing Characteristics (Compact Blow Type)

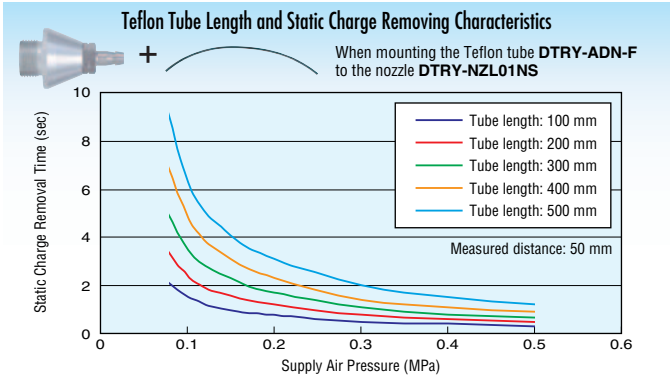
The following graphs show static charge removing characteristics obtained when using the compact blow type Ionizer, DTRY-ELL01 with typical nozzles. Advantages of the compact type in installation enable static charge removal with pinpoint accuracy.

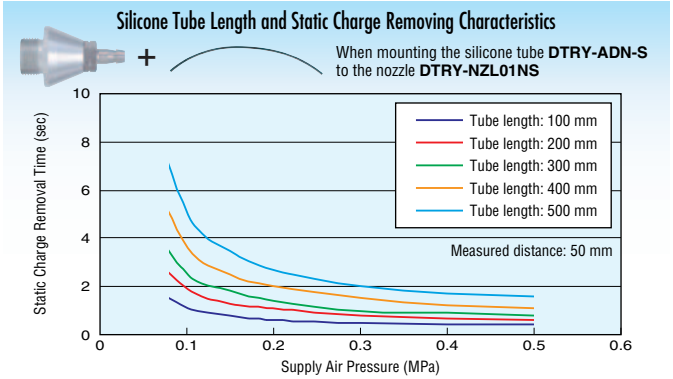
※Static charge removing characteristics are measured by in-house test standard.

※For the graph of static charge removing characteristics obtained when using the standard nozzle **DTRY-NZL01NS**, see page ⑩.




Conductive Urethane Tube Length and Static Charge Removing Characteristics
When mounting the conductive urethane tube DTRY-ADN-U to the nozzle DTRY-NZL01NS
Tube length: 100 mm
Tube length: 200 mm
Tube length: 300 mm
Tube length: 400 mm
Tube length: 500 mm
Measured distance: 50 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)


Teflon Tube Length and Static Charge Removing Characteristics
When mounting the Teflon tube DTRY-ADN-F to the nozzle DTRY-NZL01NS
Tube length: 100 mm
Tube length: 200 mm
Tube length: 300 mm
Tube length: 400 mm
Tube length: 500 mm
Measured distance: 50 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

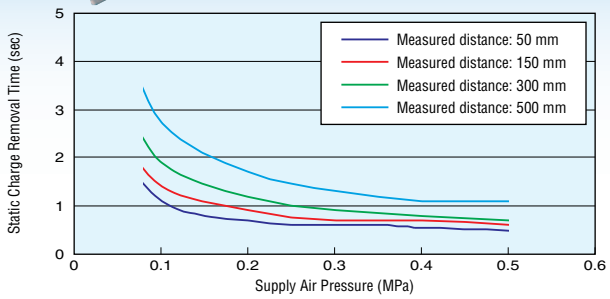

Silicone Tube Length and Static Charge Removing Characteristics
When mounting the silicone tube DTRY-ADN-S to the nozzle DTRY-NZL01NS
Tube length: 100 mm
Tube length: 200 mm
Tube length: 300 mm
Tube length: 400 mm
Tube length: 500 mm
Measured distance: 50 mm
Static Charge Removal Time (sec)
Supply Air Pressure (MPa)

1 MPa = 145psi.

Graphs of Static charge Removing Characteristics

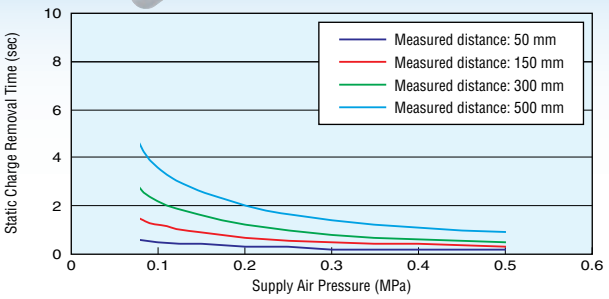
Static Charge Removing Characteristics obtained when the Nozzle with Stainless Steel Pipe is used

Nozzle : **DTRY-NZL02S**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

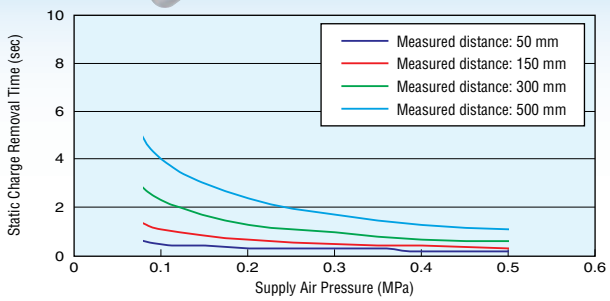
Static Charge Removing Characteristics obtained when Shower Nozzle (60° type) is used

Nozzle : **DTRY-NZL20SW**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

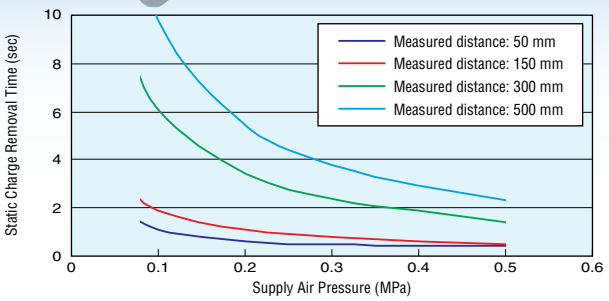
Static Charge Removing Characteristics obtained when Shower Nozzle (90° type) is used

Nozzle : **DTRY-NZL21SW**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

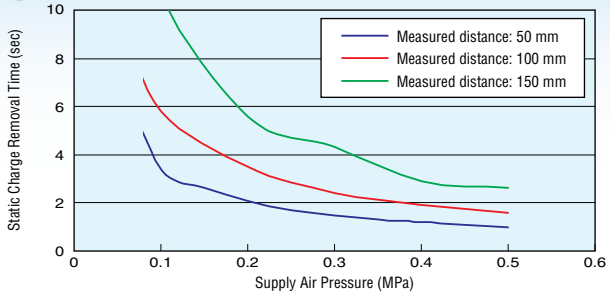
Static Charge Removing Characteristics obtained when the Flat Nozzle is used

Nozzle : **DTRY-NZL01FT**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

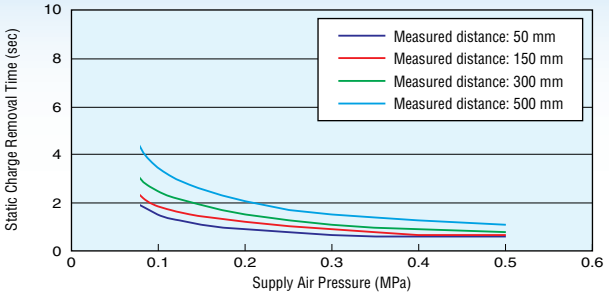
Static Charge Removimg Characteristics obtained when the Spiral Bar Nozzle is used

Nozzle : **DTRY-NZL200SP**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 100 mm
Measured distance: 150 mm

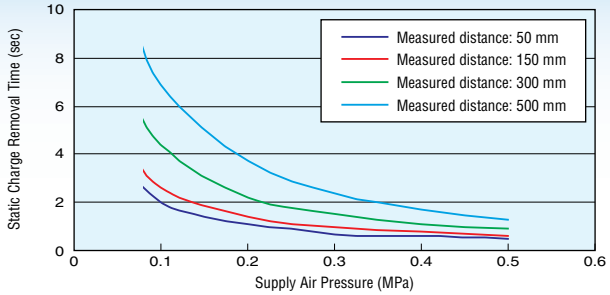
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZL100B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

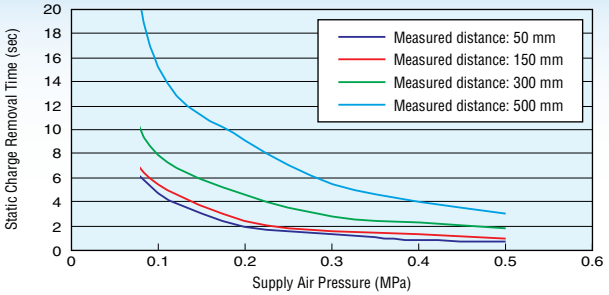
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (200 mm) is used

Nozzle : **DTRY-NZL200B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

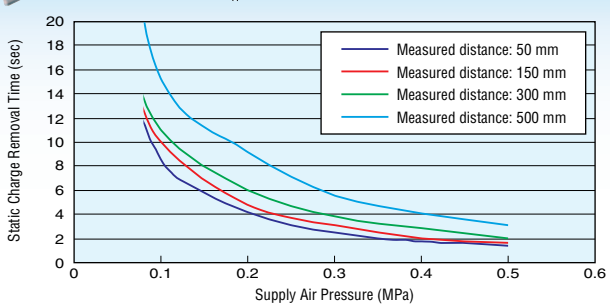
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (300 mm) is used

Nozzle : **DTRY-NZL300B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

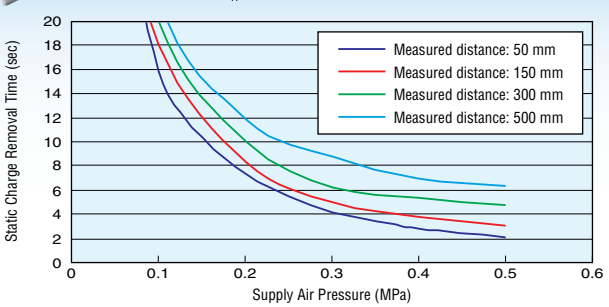
Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (400 mm) is used

Nozzle : **DTRY-NZL400B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

Static Charge Removing Characteristics obtained when the Straight Bar Nozzle (500 mm) is used

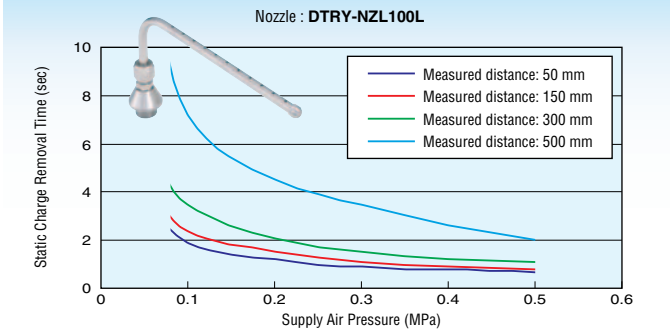
Nozzle : **DTRY-NZL500B**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

1 MPa = 145psi.

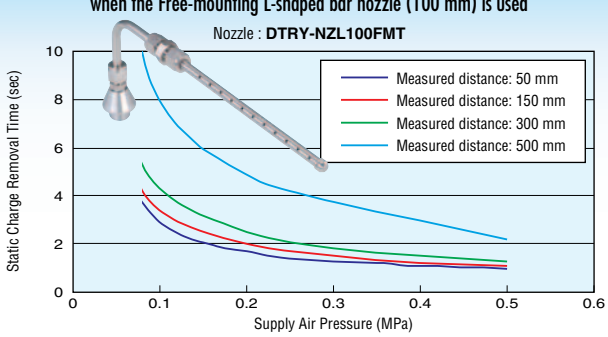
Static Charge Removing Characteristics obtained when the L-shaped Bar Nozzle (100 mm) is used

Nozzle : **DTRY-NZL100L**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

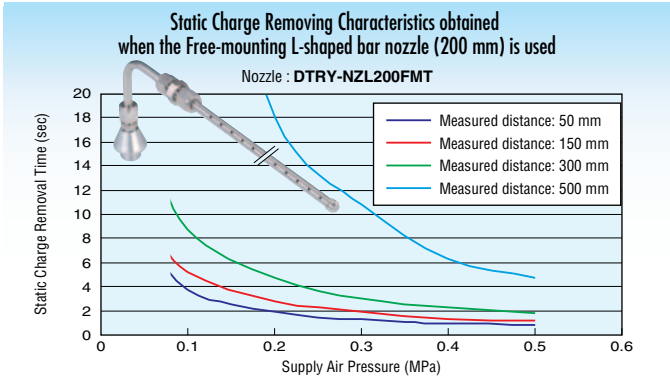
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (100 mm) is used

Nozzle : **DTRY-NZL100FMT**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

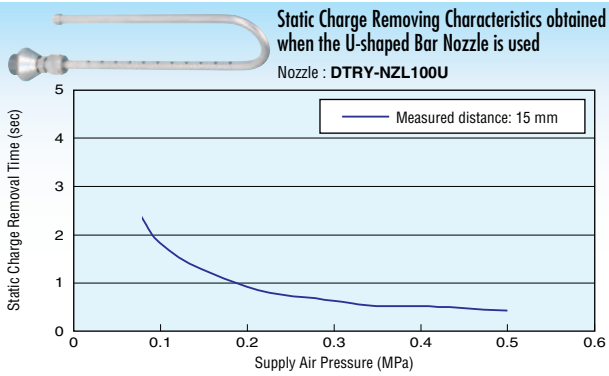
Static Charge Removing Characteristics obtained when the Free-mounting L-shaped bar nozzle (200 mm) is used

Nozzle : **DTRY-NZL200FMT**


Static Charge Removal Time (sec)
Supply Air Pressure (MPa)
Measured distance: 50 mm
Measured distance: 150 mm
Measured distance: 300 mm
Measured distance: 500 mm

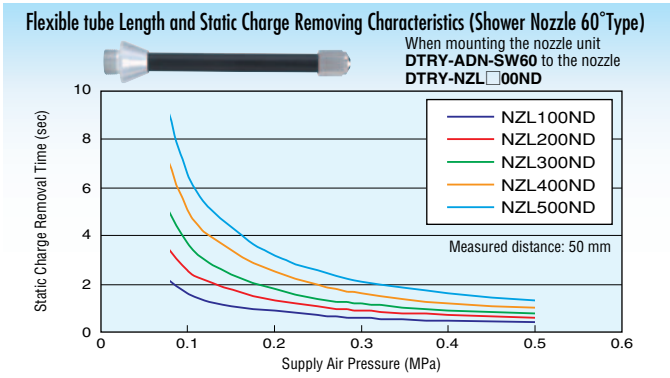
Static Charge Removing Characteristics obtained when the U-shaped Bar Nozzle is used

Nozzle : **DTRY-NZL100U**



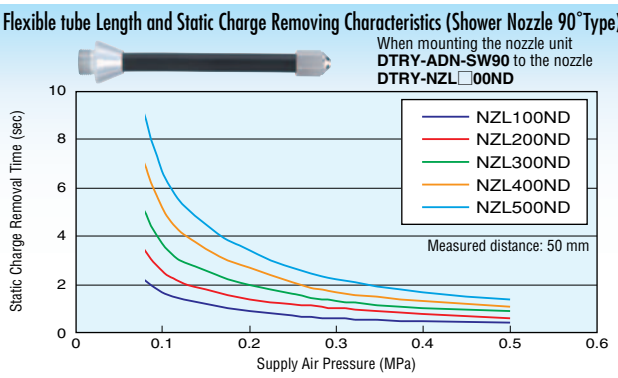
Flexible tube Length and Static Charge Removing Characteristics (Shower Nozzle 60°Type)

When mounting the nozzle unit **DTRY-ADN-SW60** to the nozzle **DTRY-NZL□00ND**



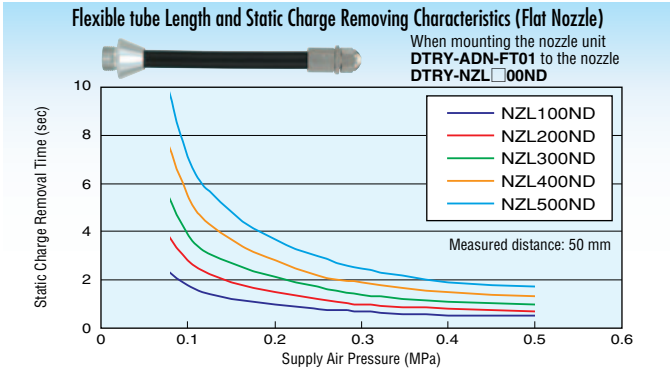
Flexible tube Length and Static Charge Removing Characteristics (Shower Nozzle 90°Type)

When mounting the nozzle unit **DTRY-ADN-SW90** to the nozzle **DTRY-NZL□00ND**



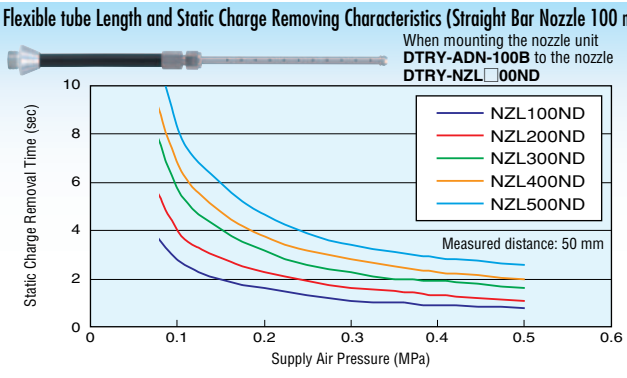
Flexible tube Length and Static Charge Removing Characteristics (Flat Nozzle)

When mounting the nozzle unit **DTRY-ADN-FT01** to the nozzle **DTRY-NZL□00ND**



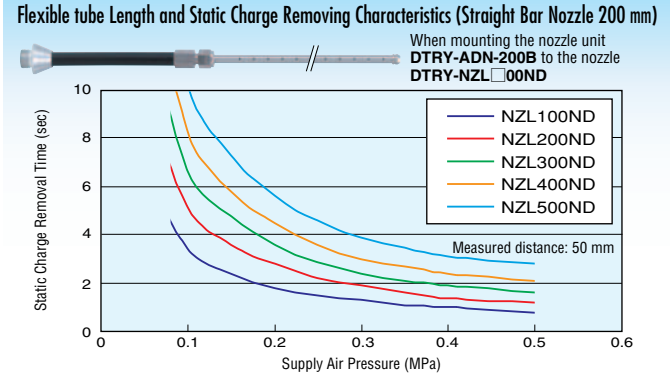
Flexible tube Length and Static Charge Removing Characteristics (Straight Bar Nozzle 100 mm)

When mounting the nozzle unit **DTRY-ADN-100B** to the nozzle **DTRY-NZL□00ND**



Flexible tube Length and Static Charge Removing Characteristics (Straight Bar Nozzle 200 mm)

When mounting the nozzle unit **DTRY-ADN-200B** to the nozzle **DTRY-NZL□00ND**



1 MPa = 145psi.

Note: The static charge removing characteristics are measured by in-house test standard.

FAN TYPE

Available in five models according to where to install, and type of workpieces.
Needs no air supply, and enables high-speed pinpoint static charge removal from a distant location.

FAN TYPE

DTRY-ELF01

Application example

- Compact body unit allows installation in confined spaces such as inside application equipment.
  - Placing the Ionizer close to a product rapidly removes the static charges with pinpoint accuracy.
- Due to good ion balance, the removal of static charges is always possible.
  - Ion balance ±10 V max.
- Compact but superb removing static charge performance.
  - Decay time from 1000V to 100V at 100mm distance is within 3 seconds.
- You are not required to supply air to the Fan type Ionizer therefore reducing running costs.
- Alarm output in case abnormality occurs in the Ionizer.
  - Enables prevention of manufacturing defective products caused by a faulty Ionizer.
- Alarm output when a blower fan stops.
  - An alarm is produced within a second when an ion blower fan stops.
- Possible to connect in series.
  - By using the DC power output from the Ionizer, it is possible to connect up to 3 units in series.
    Note: In the case of series connection, the error signal on each Ionizer is not available.

TURBO-FLOW FAN TYPE

DTRY-ELT11

DTRY-ELT21

- You can make pinpoint static charge removal for distant workpieces.
  - A sirocco fan generating a large volume of air is used, making it possible to achieve high-speed pinpoint static charge removal for distant work pieces without using compressed air.

DTRY-ELT11

- Using a flow rate adjusting plate, you can easily obtain the required flow rate.
  - By using the provided flow rate adjusting plate, you can adjust your required airflow rate easily.

Flow rate adjusting plate

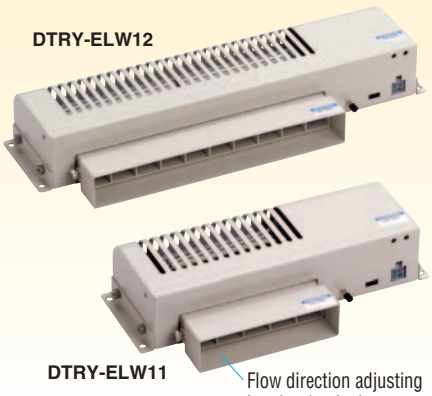
- Compact space saving design.
  - The palm-size compact design offers you a space-saving Ionizer, allowing you a wider choice of installation positions.
- Using the optional bracket, you can install the Ionizer flexibly.
  - By using the optional bracket, you can easily make angle adjustments and installation adjustment in vertical direction of the main unit of the Ionizer. (**DTRY-ELQ01**)
- Using the flow direction adjusting plate at the fan outlet, you can make fine adjustment of the direction of the airflow.
  - By using the flow direction adjusting plate at the fan outlet, you can make fine adjustments of the horizontal direction airflow.

DTRY-ELT21

- Approximately three times flow rate of the **DTRY-ELT11**
- By using the adjusting knob, you can obtain your desired flow rate easily.

WIDE-FLOW FAN TYPE

DTRY-ELW12



DTRY-ELW11

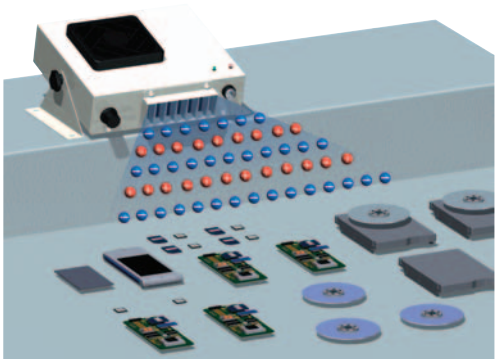
Flow direction adjusting bracket (option)

- Most suitable for static charge removal for wide and large workpieces.
  - The Ionizer uses a cross flow fan, allowing you to make high-speed static charge removal for wide circuit boards, liquid crystal works, packaging films etc.
- Using the optional flow direction adjusting bracket, you can make fine adjustment of the ionized air flow even after installation of the main unit.
  - Installing the optional flow direction adjusting bracket, you can adjust the vertical direction (upward and downward directions) of the flow up to 15°.
- Depending on the size of the workpiece, you can choose between two types of Ionizers.
  - Two types of Ionizers are available. One is fitted with a 100mm wide flow outlet and the other comes with a 200mm wide flow outlet, enabling you to select the appropriate one according to the size of the work concerned.
- Thin space-saving design.
  - Unlike conventional Ionizers, this Ionizer is thin, allowing you a wider choice of installation positions. Use of the bracket provided allows you to mount the ionizer with the main unit's upper surface as its mounting surface.
- The airflow rate selector switch enables to adjust the flow rate.
  - By using the flow rate selector switch on the front of the main unit, you can adjust the airflow rate according to the work concerned.
- The airflow rate selector switch and the abnormality indicator LED are placed on the flow outlet side, giving you easy operation and visual confirmation.

Fan Type Application Examples

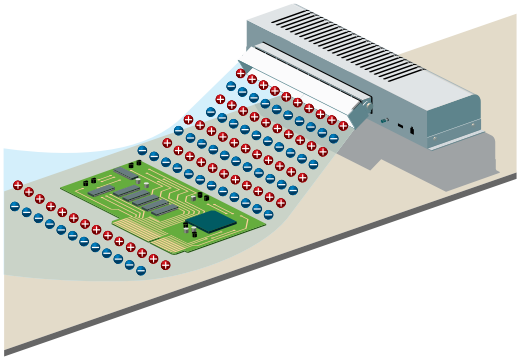
●Static charge removal for parts on a work bench

Removes static charges from various parts when assembling



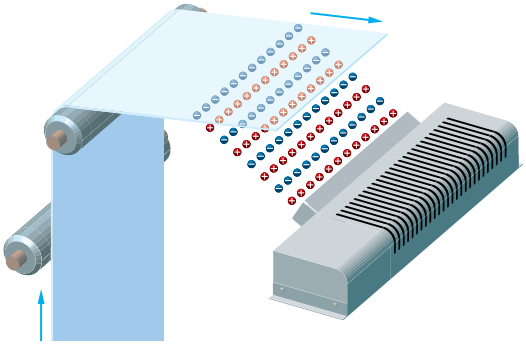
●Static charge removal for circuit boards etc..

You can make static charge removal for relatively wide objects.



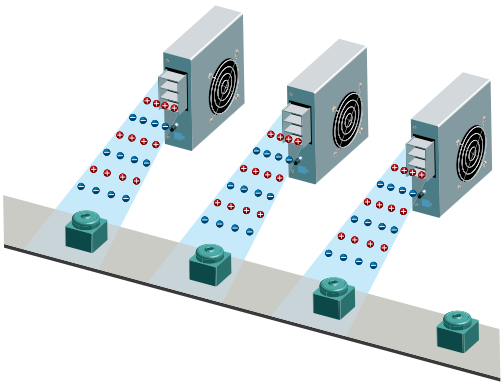
●Static charge removal for packaging films etc.

You can remove the static electricity generated when the film leaves the film roller.

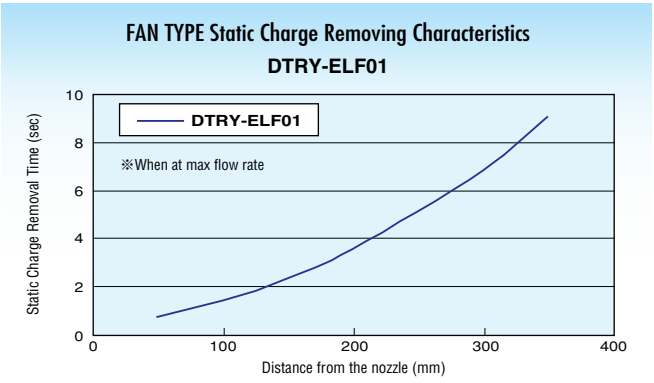


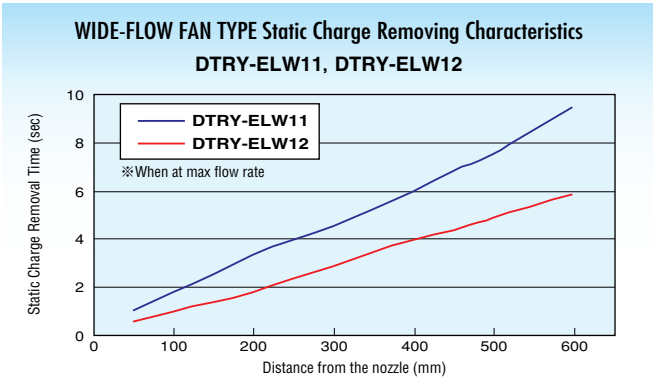
●Static charge removal for plastic container and parts etc.

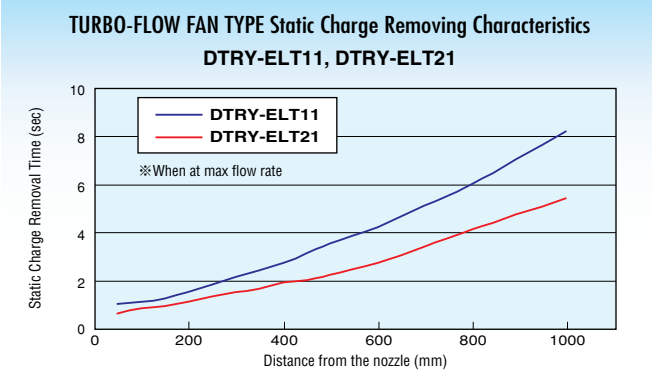
You can make static charge removal from relatively far locations.



Graphs of Static charge Removing Characteristics







Note: The static charge removing characteristics are measured by in-house test standard.

Specifications

Fan Type

Item \ Model			DTRY-ELF01
Power supply			12 ～ 24 VDC ± 10%
Consumption current		mA	300 (at 12 VDC power supply) / 150 (at 24 VDC power supply)
Output voltage		kV	Approx. 2 (High frequency type)
Indicator LED	Power supply		While the power is supplied, the POWER LED (Green) on the top of the main unit turns on.
	Abnormality		When an abnormality occurs during discharge, the H.V.ALARM LED on the top of the main unit turns on.
			When the fan blower stops, the FAN ALARM LED on the top of the main unit turns on.
Power safety circuit			Outputs the alarm signal when an abnormality occurs (relay **a**-contact :30 VDC 1 A MAX)
Outer dimensions		mm	46 (L) × 67 (W) × 81 (H) (Does not include protruding portions)
Mass		g [oz.]	320 [11.28] (Main unit only)
Ion balance		V	±10
Ozone generation amount		ppm	0.04 or less (300 mm apart from the front of the flow outlet.)
Fan capacity	Max. flow rate	m^3/min	0.225
	Adjustment		High-Low 2-stage switching
Operating ambient temperature		°C [°F]	0～40 [32～104] indoors
Accessories			1 pc. power and signal cable (2 m) and 1 pc. Ionizer connection cable (2 m).

Turbo-flow fan type

Item \ Model			DTRY-ELT11	DTRY-ELT21
Power supply			24 VDC ± 10%	
Consumption current		mA	207	460
Output voltage		kV	Approx. 2 (High frequency type)	
Indicator LED	Power supply		While the power is supplied, the power indicator LED (Green) on the front of the main unit turns on.	When the power is supplied, the power indicator LED (Green) on the top of the main unit turns on.
	Abnormality		When an abnormality occurs, the abnormality indicator LED (Red) on the front of the main unit turns on.	When an abnormality occurs, the abnormality indicator LED (Red) on the top of the main unit turn on.
Power safety circuit			Outputs the alarm signal when an abnormality occurs during discharge (open collector output: 24 VDC, 10 mA Max.)	Outputs the alarm signal when an abnormality occurs during discharge, **a**-contact normally open (30 VDC, 200 mA)
Outer dimensions		mm	102 (L) ×114 (W) × 37 (H) (Does not include protruding portions)	160 (L) ×185 (W) × 50 (H) (Does not include protruding portions)
Mass		g [oz.]	455 [16.05] (Main unit only)	1300 [45.86] (Main unit only)
Ion balance		V	±20	±15
Ozone generation amount		ppm	0.03 or less (300 mm apart from the front of the air flow outlet)	
Fan capacity	Max. flow rate	m^3/min	0.26	0.7
	Adjustment		Adjustment by using the flow rate adjusting plate.	Adjustment by variable resistor
Operating ambient temperature		°C [°F]	0～40 [32～104] indoors	
Accessories			1 pc. power and signal cable (2 m), 1 pc. ground lead wire (2 m), and 1 pc. flow rate adjusting plate	1 pc. power and signal cable (2 m), 1 pc. ground lead wire (2 m), and 1 pair of stands

Wide-flow fan type

Item \ Model			DTRY-ELW11 (100 mm opening type)	DTRY-ELW12 (200 mm opening type)
Power supply			24 VDC ± 10%	
Consumption current		mA	137	154
Output voltage		kV	Approx. 2 (High frequency type)	
Indicator LED	Power supply		While the power is supplied, the power indicator LED (Green) on the front of the main unit turns on.	
	Abnormality		When an abnormality occurs, the abnormality indicator LED (Red) on the front of the main unit turns on.	
Power safety circuit			Outputs the alarm signal when an abnormality occurs during discharge (open collector output: 24 VDC, 10 mA Max.).	
Outer dimensions		mm	204(L)×90(W)×46(H) (Does not include protruding portions)	304(L)×90(W)×46(H) (Does not include protruding portions)
Mass		g [oz.]	762 [26.88] (Main unit only)	1039 [36.65] (Main unit only)
Ion balance		V	±30	
Ozone generation amount		ppm	0.05 or less (300 mm apart from the front of the air flow outlet.)	0.03 or less (300 mm apart from the front of the air flow outlet)
Fan capacity	Max. flow rate	m^3/min	0.22	0.7
	Adjustment		2-stage switching by selector switch	3-stage switching by selector switch
Operating ambient temperature		°C [°F]	0～40 [32～104] indoors	
Accessories			1 pc. power and signal cable (2 m), 1 pc. ground lead wire (2 m), and 1 set of mounting bracket	

Remark: Ion balance is measured by in-house test standard.

Order code

FAN TYPE

■Main Unit

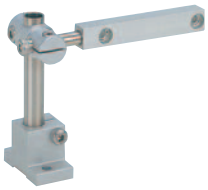
●Fan Type
DTRY-ELF01

■Options

●AC adapter
DTRY-ELC03

Rating
Input : 100 VAC thru 240 VAC
50/60 Hz 40VA
Output: 24 VDC 750mA

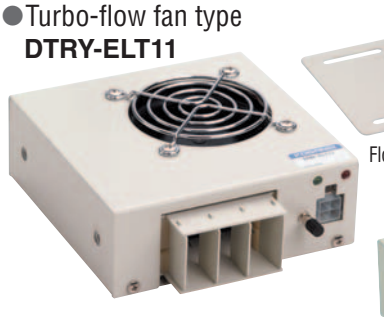
●Optional bracket (For **DTRY-ELF01** use only)
Note: This bracket cannot be used for the turbo-flow fan type.
DTRY-ELF31



TURBO-FLOW FAN TYPE

■Main units

●Turbo-flow fan type
DTRY-ELT11



Flow rate adjusting plate

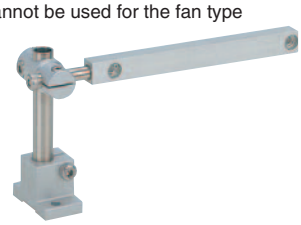
●Turbo-flow fan type
DTRY-ELT21

■Options

●AC adapter
DTRY-ELC03

Rating
Input : 100 VAC thru 240 VAC
50/60 Hz 40VA
Output: 24 VDC 750mA

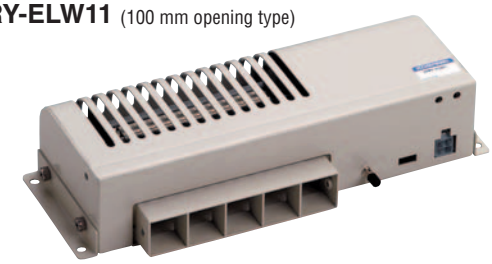
●Optional bracket (for **DTRY-ELT11** use only)
Note: This bracket cannot be used for the fan type **DTRY-ELF01**.
DTRY-ELQ01



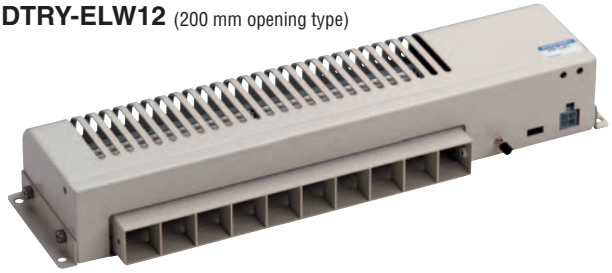
WIDE-FLOW FAN TYPE

■Main units

●Wide-flow fan type
DTRY-ELW11 (100 mm opening type)



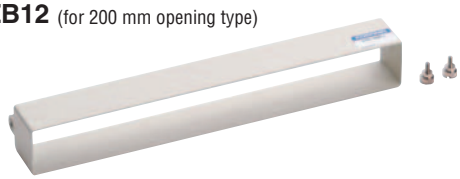
DTRY-ELW12 (200 mm opening type)



■Options

●Flow direction adjusting bracket for the wide-flow fan type
DTRY-NZB11 (for 100 mm opening type)

DTRY-NZB12 (for 200 mm opening type)



●AC adapter
DTRY-ELC03

Rating
Input : 100 VAC thru 240 VAC
50/60 Hz 40VA
Output: 24 VDC 750mA

Dimensions (mm)

FAN TYPE

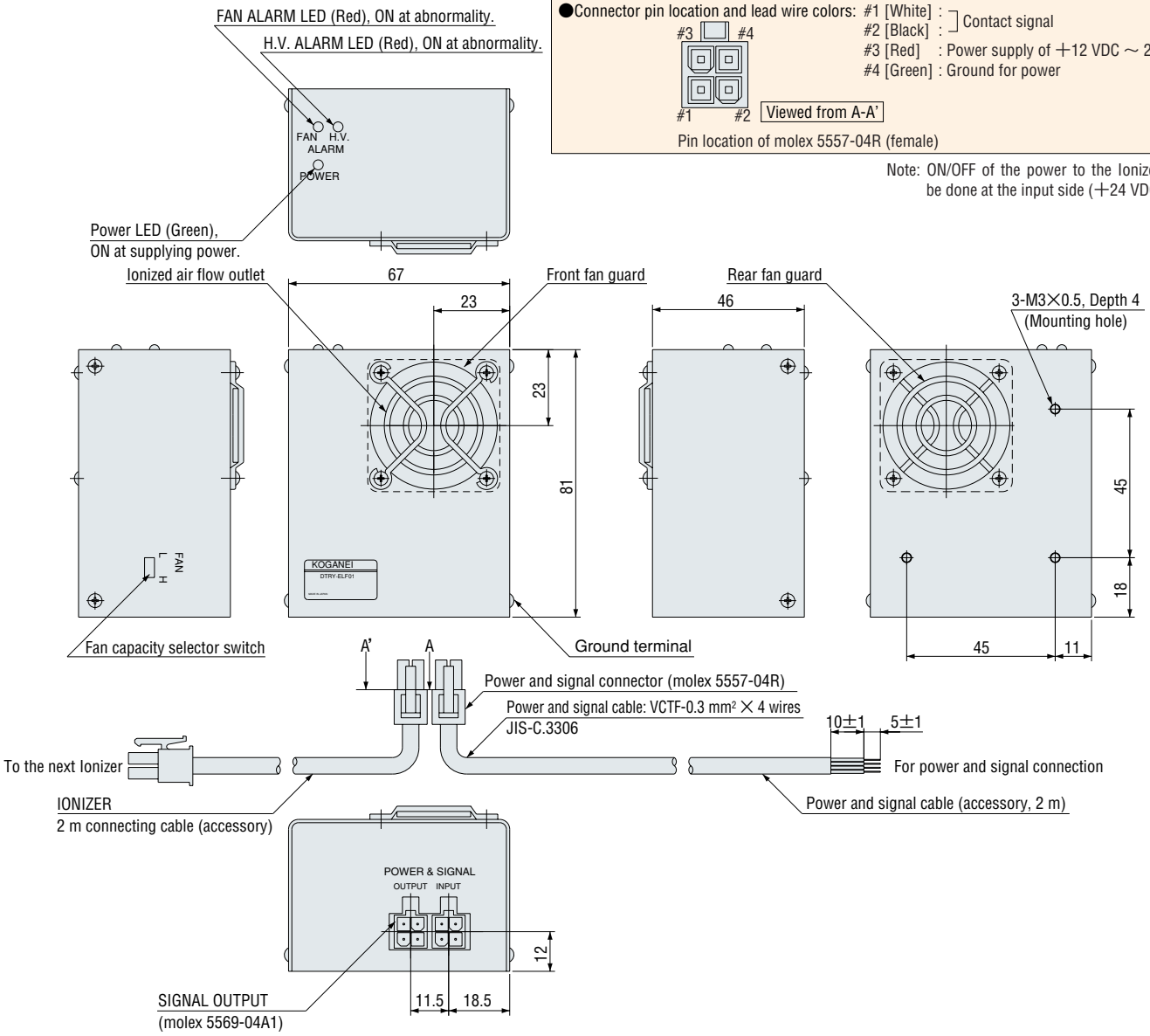
●**DTRY-ELF01**

Power and signal cable (accessory)

●Input power: +12 VDC thru 24 VDC
●Abnormarity alarm: 2 types - Abnormality at high voltage section, and fan stoppage.
●Contact signal: Relay **a**-contact
●Power consumption: 300 mA at 12 V supply voltage / 150 mA at 24V supply voltage.
●Connector pin location and lead wire colors: #1 [White] : #2 [Black] : Contact signal
#3 [Red] : Power supply of +12 VDC ~ 24 VDC
#4 [Green] : Ground for power

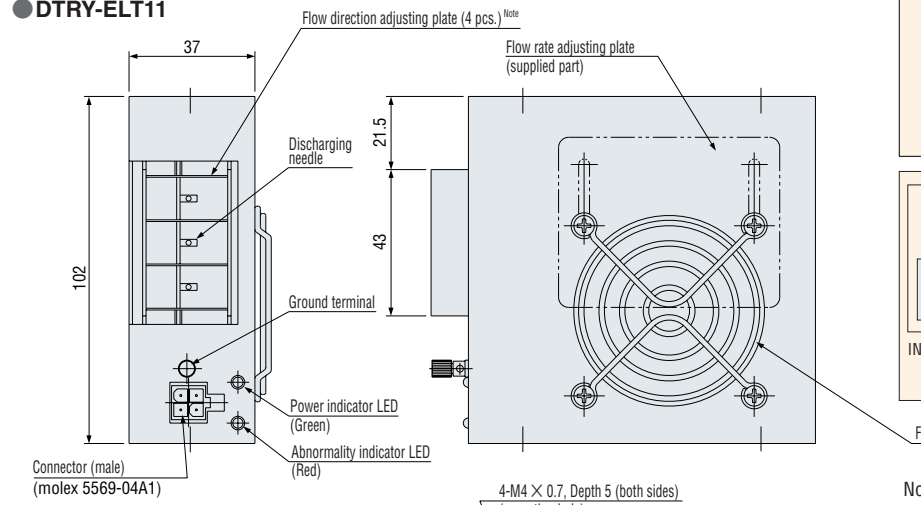
Pin location of molex 5557-04R (female)

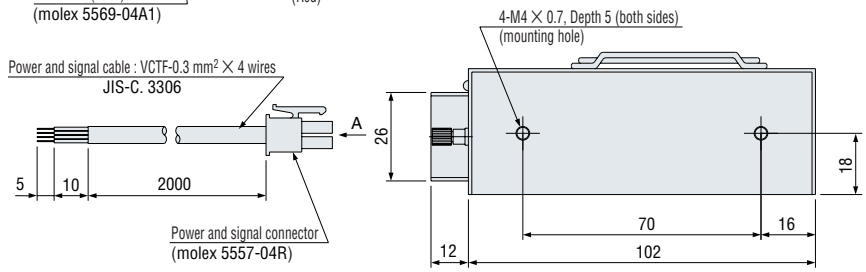
Note: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).



TURBO-FLOW FAN TYPE

●DTRY-ELT11

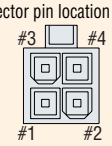




Power and signal cable (Accessory)

●Input power: +24 VDC

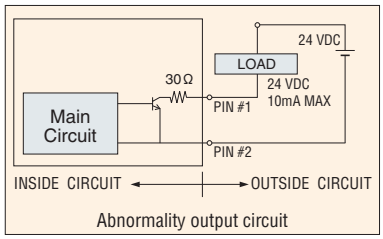
●Connector pin location and lead wire colors:



#1 [White] :Abnormality output
#2 [Black] :Output ground
#3 [Red] :Input power +24 VDC
#4 [Green] :Ground for power

Viewed from A

Pin location of molex 5557-04R (female)



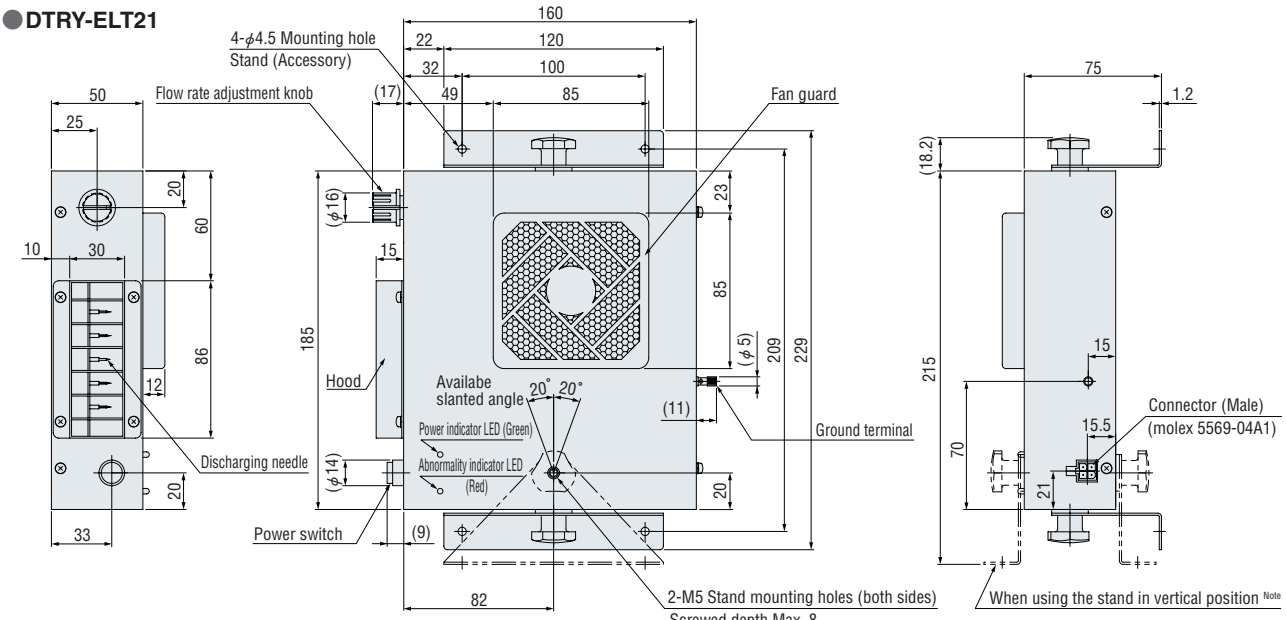
Abnormality output circuit

Note1: ON/OFF of the power to the Ionizer should be done at the input side (+24 VDC side).

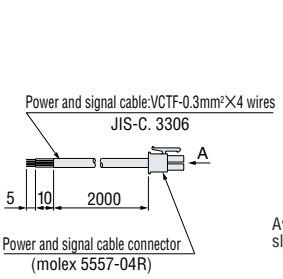
2: After mounting the turbo flow fan type by using the optional bracket (**DTRY-ELQ01**) etc., the flow direction adjusting plate enables fine adjustment (up to 5°) of the flow direction by bending it. However, repeated bending may break the plate. Number of bending of the plate should be kept to a minimum (around several times).

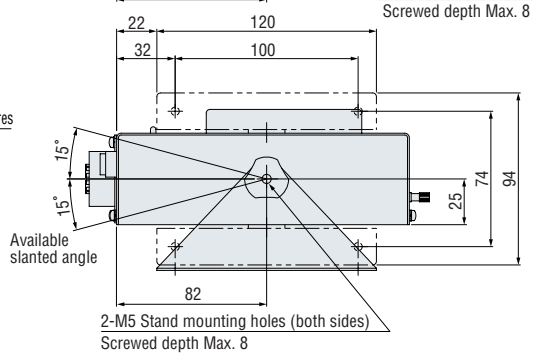
3: Do not contact the fan outlet (flow direction adjusting plate) with a grounded conductive object. The abnormality indicator LED may turn on.

●DTRY-ELT21



Note: Be careful that the stand does not hit the LEDs when rotating.

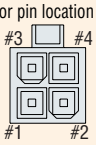




Power and signal cable (Accessory)

●Input power: +24 VDC

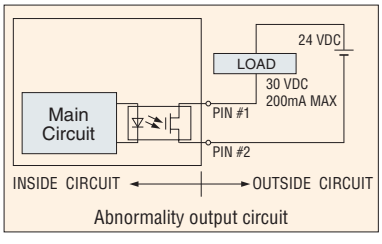
●Connector pin location and lead wire colors:



#1 [White] :
#2 [Black] :] Contact point output
#3 [Red] : Input power +24 VDC
#4 [Green] : Ground for power

Viewed from A

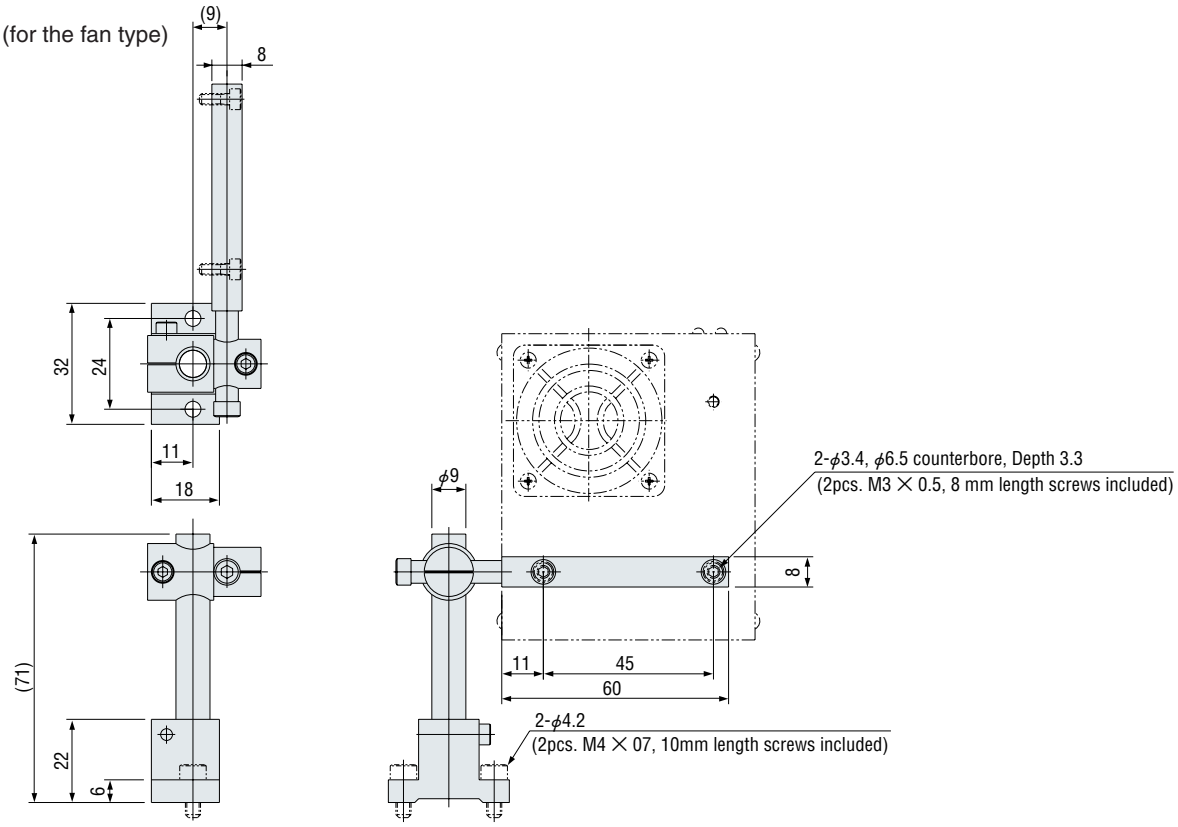
Pin location of molex 5557-04R (female)



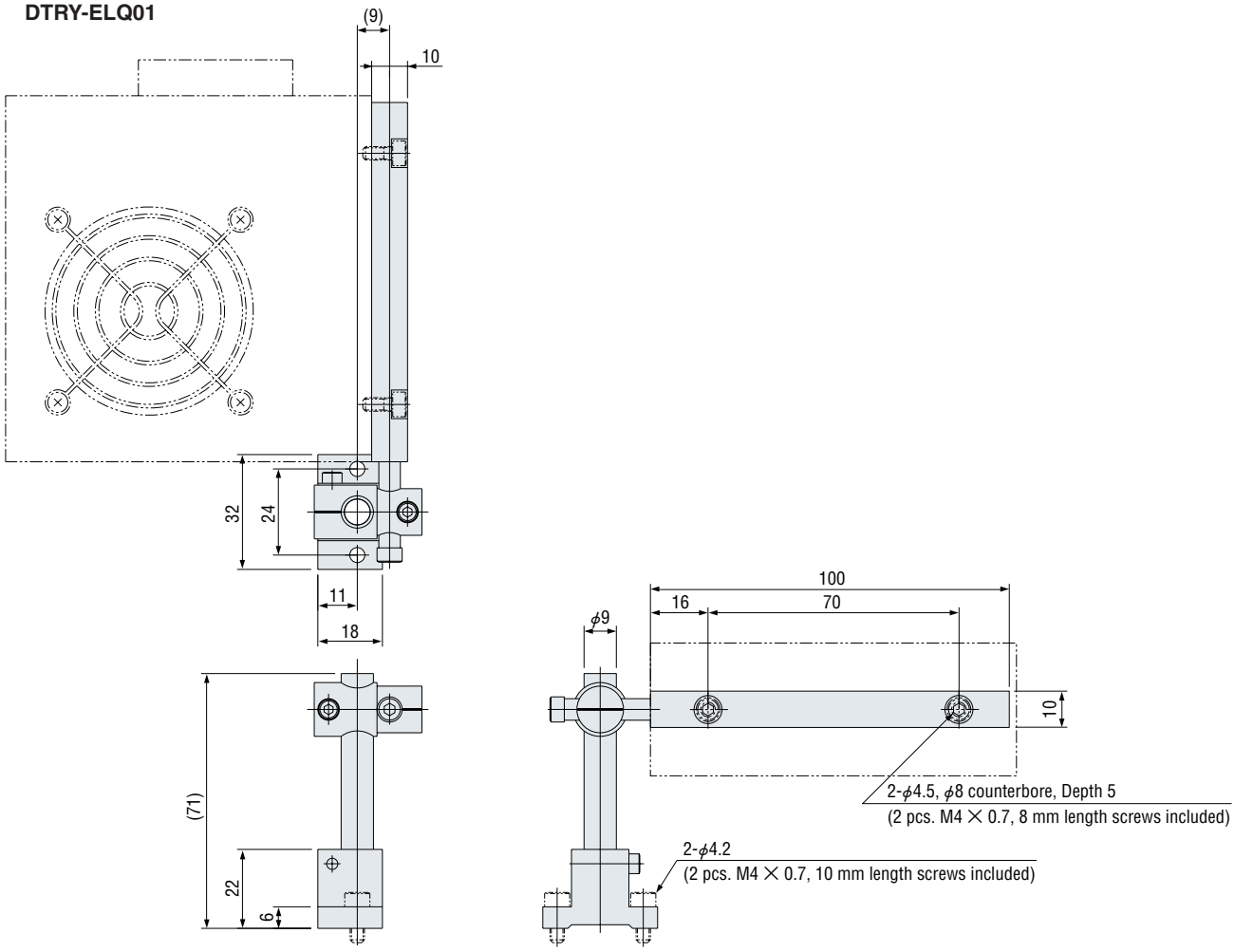
Abnormality output circuit

FAN TYPE

●Optional Bracket (for the fan type)
DTRY-ELF31



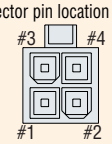
●Optional bracket (for the turbo-flow fan type **DTRY-ELT11**)
DTRY-ELQ01



WIDE-FLOW FAN TYPE

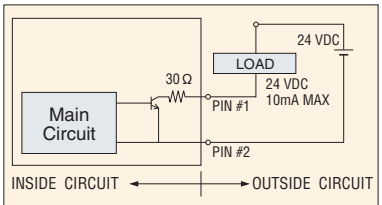
●DTRY-ELW11 (100 mm opening type)

Power and signal cable (Accessary)
●Input power: +24 VDC
●Connector pin location and lead wire colors:



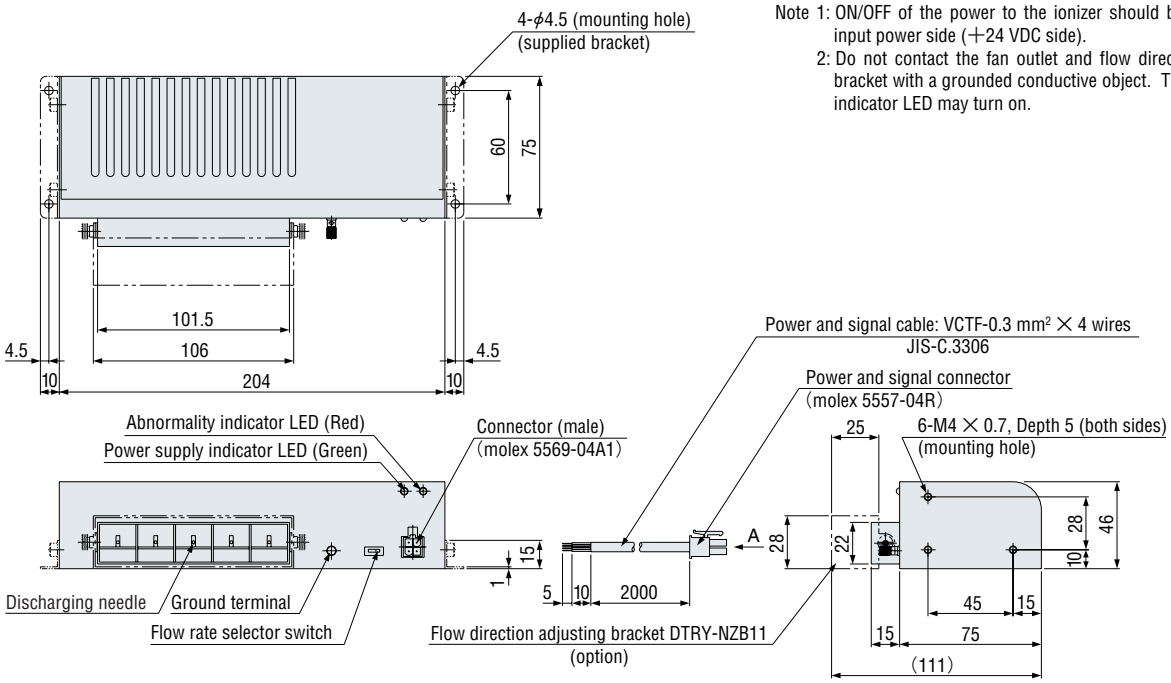
#1 [White] :Abnormality output
#2 [Black] :Output ground
#3 [Red] :Input power +24 VDC
#4 [Green] :Ground for power
Viewed from A

Pin location of molex 5557-04R (female)



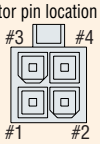
Abnormality output circuit

Note 1: ON/OFF of the power to the ionizer should be done at the input power side (+24 VDC side).
2: Do not contact the fan outlet and flow direction adjusting bracket with a grounded conductive object. The abnormality indicator LED may turn on.



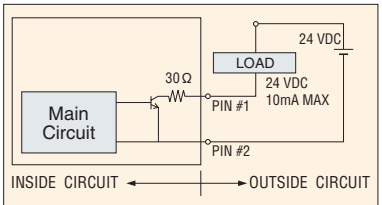
●DTRY-ELW12 (200 mm opening type)

Power and signal cable (Accessary)
●Input power: +24 VDC
●Connector pin location and lead wire colors:



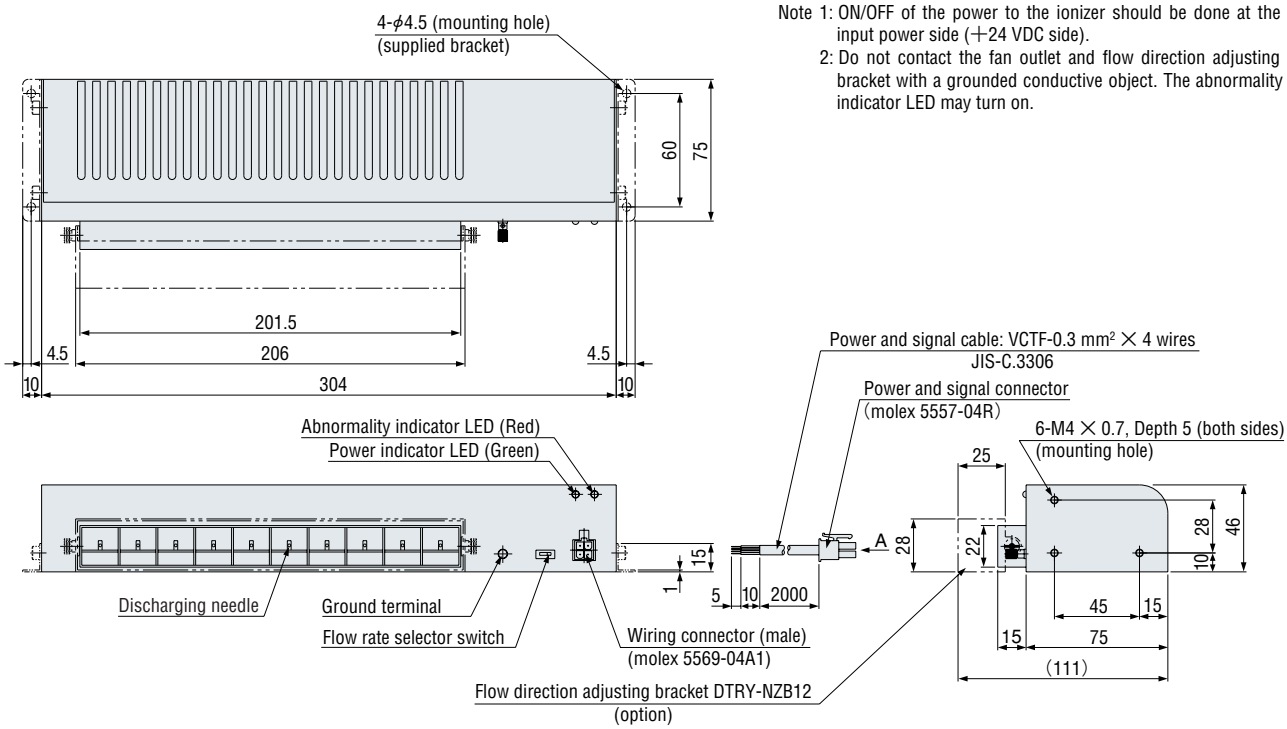
#1 [White] :Abnormality output
#2 [Black] :Output ground
#3 [Red] :Input power +24 VDC
#4 [Green] :Ground for power
Viewed from A

Pin location of molex 5557-04R (female)



Abnormality output circuit

Note 1: ON/OFF of the power to the ionizer should be done at the input power side (+24 VDC side).
2: Do not contact the fan outlet and flow direction adjusting bracket with a grounded conductive object. The abnormality indicator LED may turn on.



AIR GUN TYPE

Has built-in compact high-voltage power supply and discharging electrodes, and can remove static charges and blow off dust instantaneously.

Features

- Air piping port with a ϕ6 quick fitting provides easy plumbing.
- Employs high frequency corona ionization method for constant and optimum removal of static charges with superior ion balance (When the distance from ionized air flow outlet is 50 mm, ion balance is ±15 V or less).
- There is little radiation noise, and no electrical field concentration generated by corona discharge, therefore there is no bad effet on electric equipment and devices.
- Compact high-voltage power supply is built in the main body, and high-voltage section is not exposed externally, providing safer design. Main body weighs only 140 g and is very compact.
- Easy-to-use structure, because air supply tube, electric power supply and signal wire are all built into one cable.
- Two types of nozzles are equipped as standard (Long and short). Suitable for removing static charges with pinpoint accuracy, and removing dust in tight spaces.
- Electric operation switch offers light force operation and is free of finger fatigue.
- Two operating procedures of operation switch:
  Mode A: Provides air flow while the operation switch is pressed. (This is the same as general air guns.)
  Mode B: Provides air flow when the operation switch is pressed once, and press it again to stop. This keeps the blowing air when the switch pressed once.
- Dedicated holder allows the use even with the main body is placed on the holder. The main body can be rotated by 9 degrees on the holder.

Application example

- Highly effective to remove dust when printing photos, or making copies.
- Countermeasures against particles attraction caused by static electricity when inputting into digital scanner.
- Countermeasures against static electricity and particles attraction when assembling, manufacturing or repairing electric equipment.
- Countermeasures against static electricity and particles attraction when forming or machining plastic.
- Countermeasures against static electricity and particles attraction in all other fields.

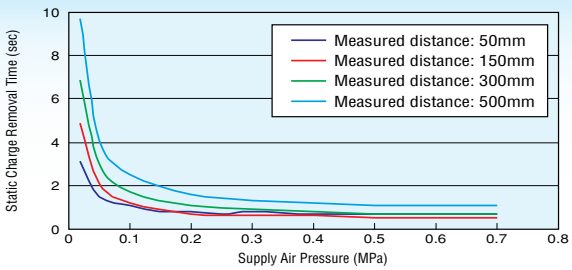
Specifications

Item / Model		DTRY-ELG01
Power supply		24 VDC±10%
Consumption current	mA	Approx. 750
Output voltage	kV	Approx. 2 (High frequency type)
Operation indicator LED	Normality	Green LED turns on during normal discharging
	Abnormality	Red LED turns on at abnormal discharging Note 1
Ion balance	V	±15 or less
Ozone generation amount	ppm	0.04 or less (100 mm apart from the nozzle outlet)
Media Note 2		Air
Operating air pressure range	MPa [psi.]	0.02～0.7 [3～102]
Operating temprature range	°C [°F]	5～35 [41～95]
Operating humidity range	%RH	20～70
Tube length Note 3	mm	Approx. 2500
Accessories		Holder, Velcro fastening

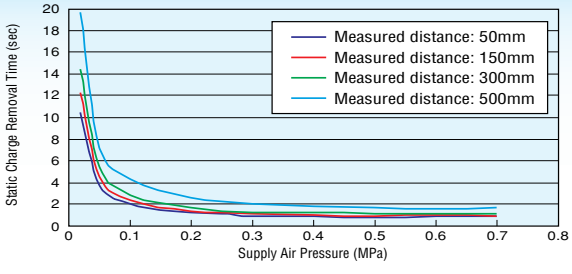
Note 1: When the red operation indicator LED turns on, shut off the power and clean the discharging needle. No alarm signal output at abnormal discharging.
2: Before using, always supply compressed air to the air piping port.
3: The power cable is built into in the tube. Do not excessively bend or cut it.
4: Ion balance is measured by in-house test standard.

Static Charge Removing Characteristics

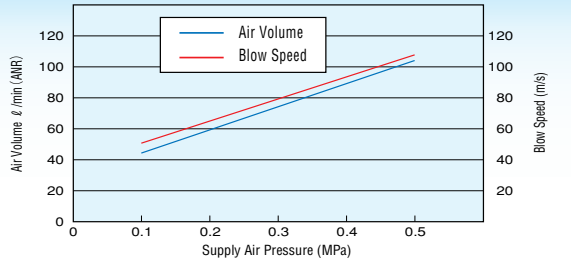
Static charge Removing Characteristics obtained when using the Standard (Short) Nozzle



Static charge Removing Characteristics obtained when using the Long Nozzle



Air Volume & Blow Speed



※Measured at the end of a short nozzle.

1 MPa = 145psi.

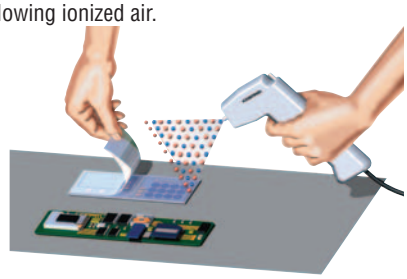
Note: The static charge removing characteristics are measured by in-house test standard.

Air Gun Type Application Examples

●Removal of static charges when peeling off a protective sheet

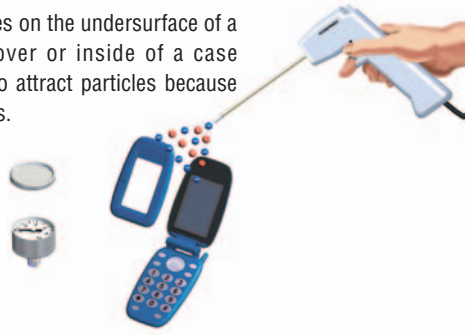
Optimum for removing particles when peeling an LCD protective sheet on car navigation systems, cellular phone, etc.

A normal high-pressure air blower may make a workpiece charged with static electricity, which could attract particles. Air Gun Type Ionizer can remove static charges while blowing away undesired particles by blowing ionized air.



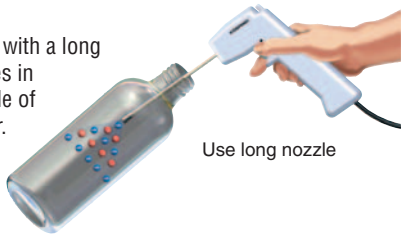
●Removal of particles when assembling parts

Remove particles on the undersurface of a transparent cover or inside of a case which is easy to attract particles because of static charges.



●Removal of particles inside a container using a long nozzle

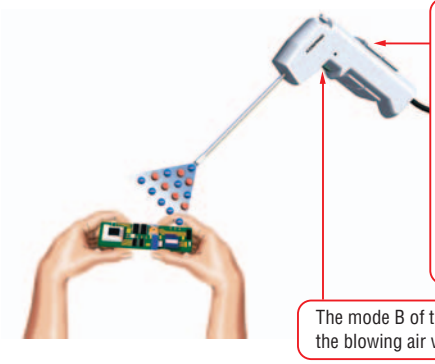
Use Air-Gun type Ionizer with a long nozzle to remove particles in a confined space or inside of a bottle necked container.



●Removal of static charges and particles on parts by securing the Air-Gun type Ionizer

The operation switch has two operating procedure

Mode A : Provides air flow while the operation switch is pressed.
Mode B : Provides air flow when the operation switch is pressed once, and press it again to stop.



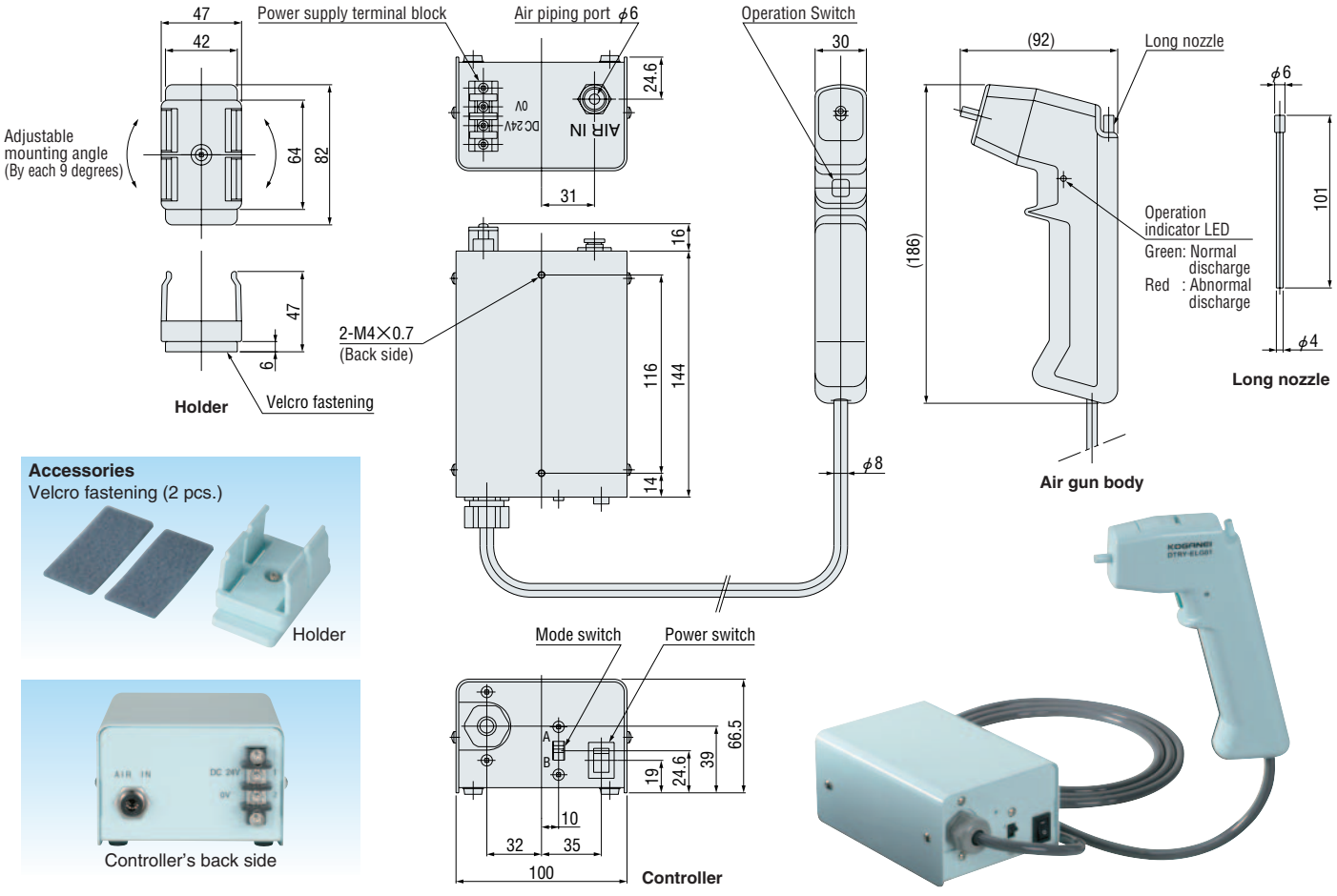
Dedicated holder

Easy to place/remove the main body to/from the holder. The main body can be rotated by each 9 degrees on the holder.

The mode B of the operation switch keeps the blowing air when pressed once.

AIR GUN TYPE

Dimensions (mm)



Accessories
Velcro fastening (2 pcs.)

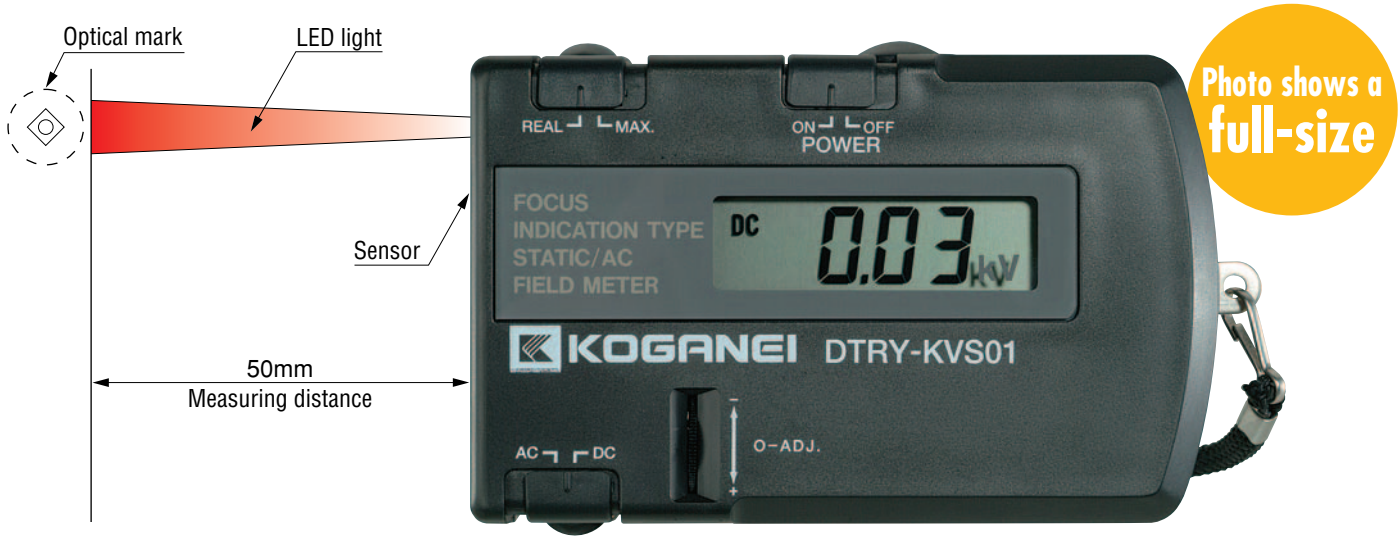
Controller's back side

ELECTROSTATIC FIELD METER

Caution Do not apply physical shocks to the unit. Shocks by dropping could cause damage or deterioration of the sensor. Further continuous use of the unit in such a state could result in a malfunction. The unit is a precision instrument like a camera. Handle the unit carefully so as not to apply shocks to it.

Enables high-reliable measurement by setting a measuring point and distance using red LED focus indication

The electrostatic field meter is a handy digital displayed measuring instrument for non-contact measurement of electric potential on charged workpieces. This device can measure an instantaneous value and peak value of electrostatic potential, and AC electric potential.



Features

- 3 measurement modes — ①Instantaneous value of electrostatic potential ②Peak value of electrostatic potential ③Alternating current electric potential
- High sensitivity and high accuracy — 3 1/2 digit display, 10 V resolution
- Easy to adjust a measuring distance — Enables high-reliable measurement by setting a measuring point and distance using red LED focus indication
- Compact and lightweight — Handy and portable
- Output terminal — Can connect to a recorder

Application example

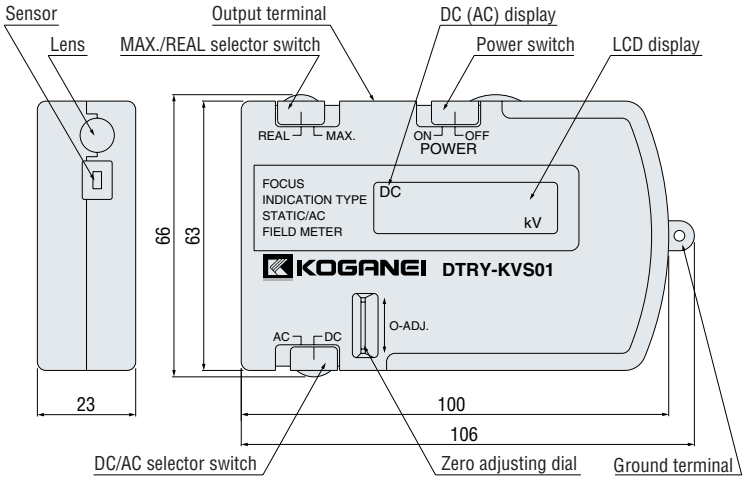
- Checks electrostatic state on film, plastic and other workpieces.
- Controls product quality by measuring electrostatic state on each location in manufacturing lines.
- Checks electrostatic state on computer peripheral devices.
- Checks operation of ionizer.

Specifications

Item / Model	DTRY-KVS01
Measuring electric potential range	0.00 (AC0.02) ~ ±19.99kV (Out-of-scale display 1b. bb)
Measuring accuracy	±5%rdg, ±2digit, 10 V resolution
Peak hold time	TYP.30 sec/1 dot, 19 kV
Measuring distance	50mm (Between measured object and sensor)
Measuring distance adjustment	Red LED light focus type (Focal distance of the optical mark is 50 mm.)
Mode switching	Manual slide switch
Polarity display	Display of negative polarity only (—)
Battery check	Flashes DC (AC) display
Power supply	10 hours continuous operation by a 1.5 VDC alkaline AA batery.
Output	1 V output, 100 Ω output impedance at 10 kV
Operating temperature and humidity range	0~40°C [32~104 °F], 20~90%RH, No condensation
Dimensions	106 (W) × 66 (D) × 23 (H)
Mass	120g [4.23oz.] (including battery)
Accessories	1 pc. AA battery, 1 pc. storage case, 1 pc. recorder terminal cable (3 m)

Note: AC electric potential is a reference value.

Dimensions (mm)



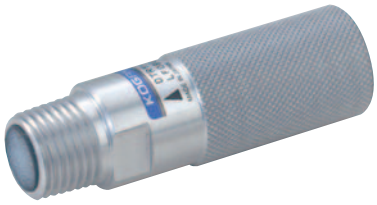
MINI LINE FILTER

Offers clean and economical air

Use of a porous hollow fiber membrane achieves a lightweight and compact filter with simple construction.
Can be mounted directly to the static electricity removing unit IONIZER.

Note: **DTRY-LF080** cannot be directly mounted to the Ionizer.

DTRY-LF040
●Connection port: R (Rc) 1/8



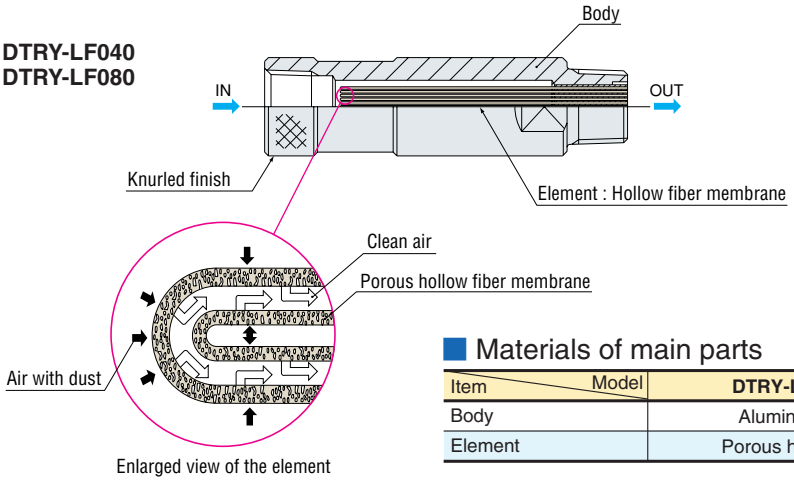
DTRY-LF080
●Connection port: R (Rc) 1/4

High filtering performance:
Filter element 0.1 micron / Filtering efficiency 99.9%

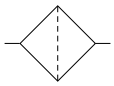
Compact but high flow rate–
DTRY-LF040: 40 ℓ/minute (ANR)※ / DTRY-LF080: 80 ℓ/minute (ANR)※
※These values are the flow rate at 0.7MPa supply air with 0.03 MPa pressure drop.

Inner construction and parts name

●DTRY-LF040
●DTRY-LF080



Symbol



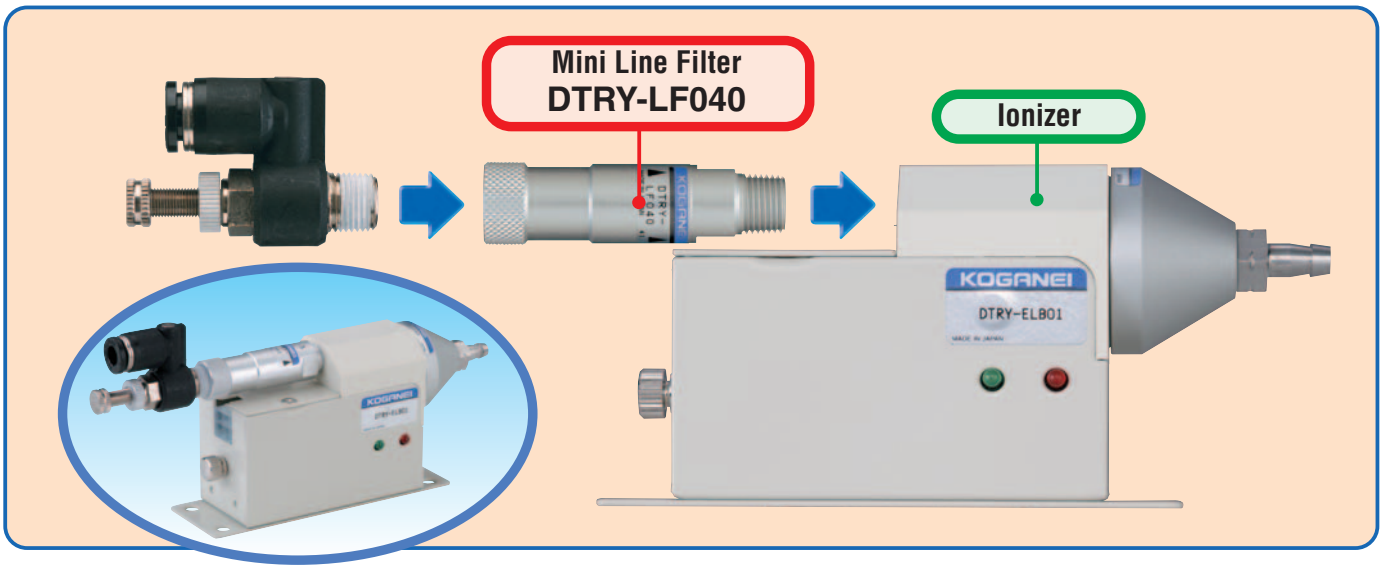
Remark: See page 41 for the specifications, flow characteristics, dimensions, handling procedures and precautions.

Note: Do not disassemble the Mini Line Filter.

■ Materials of main parts

Item \ Model	DTRY-LF040, DTRY-LF080
Body	Aluminum alloy (anodized)
Element	Porous hollow fiber membrane

Application with Ionizer



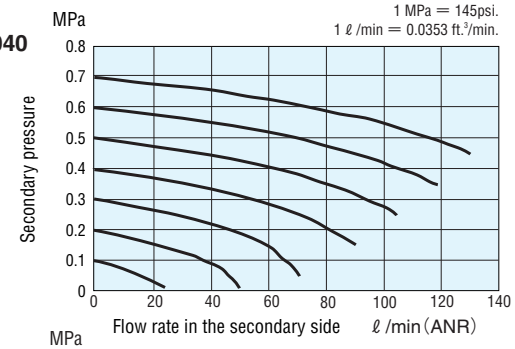
Specifications

Item \ Model	DTRY-LF040	DTRY-LF080
Media	Air	
Connection port	R (Rc) 1/8	R (Rc) 1/4
Collected particle size μm	0.1	
Filtering efficiency %	99.9	
Processing air flow rate[NOTE1] ℓ/min(ANR)	40	80
Membrane area cm^2	29.9	68.7
Maximum operating pressure MPa{kgf/cm^2} [psi.]	0.97 {9.9} [141]	
Proof pressure MPa{kgf/cm^2} [psi.]	1.47 {15} [213]	
Operating temperature range °C [°F]	5～45 [41～113]	
Mass g[oz.]	11 [0.39]	18 [0.63]
Recommended tightening torque[Note2] N·cm{kgf·cm}	400～600 {40.8～61.2}	700～900 {71.4～91.8}

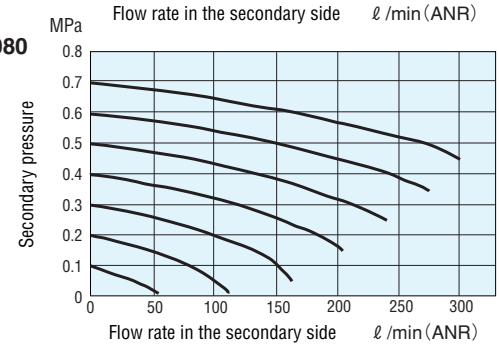
Notes 1: Flow rate at 0.7 MPa supply air with 0.03 MPa pressure drop.
In the worst case, up to 5% reduction could occur due to application.
2: When mounting the **DTRY-LF040** to the Ionizer **DTRY-ELB01**, **DTRY-ELB02** or **DTRY-ELL01**, the tightening torque should be 294N·cm {30 kgf·cm} or less.

Flow Rate Characteristics

●**DTRY-LF040**

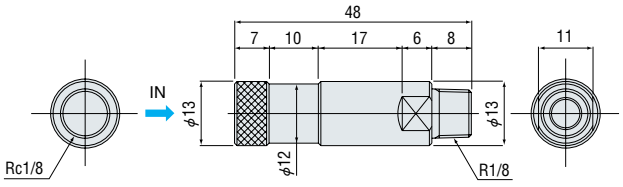


●**DTRY-LF080**

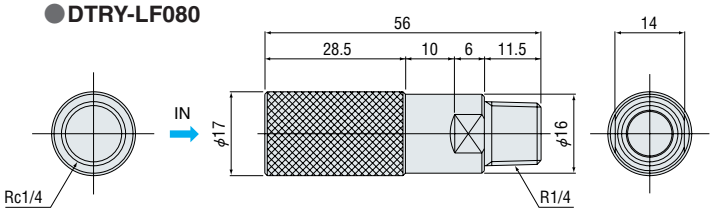


Dimensions (mm)

●**DTRY-LF040**



●**DTRY-LF080**

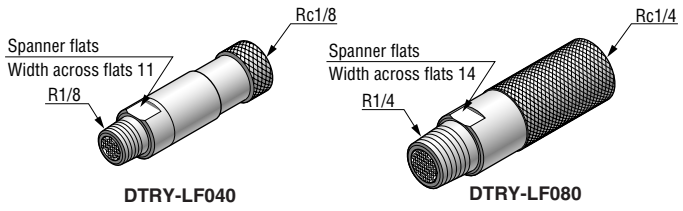


Note: The **DTRY-LF080** cannot be directly mounted to the Ionizer.

Handling procedures/Precautions (for Mini Line Filter)

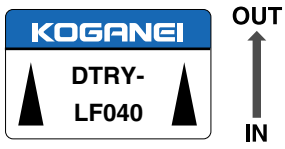
Mounting and Piping

1. When plumbing, use the flats on the body as spanner flats.



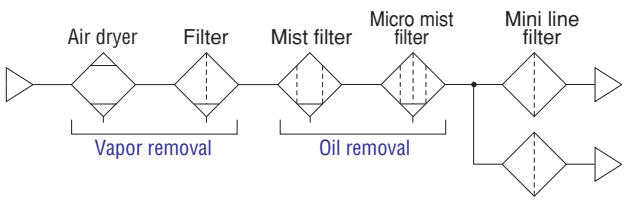
Caution When mounting the **DTRY-LF040** to the Ionizer **DTRY-ELB01**, **DTRY-ELB02** or **DTRY-ELL01**, tightening torque should be 294 N·cm {30 kgf·cm} or less. Excessive tightening could damage the Ionizer.

2. Plumb as air flows in the direction of the black arrow on the label. (Do not plumb as air flows in the reverse direction.)



3. As aluminum alloy is used in the Mini Line Filters. Take care not to apply excessive force when using in rigid piping.
4. The purpose of the Mini Line Filter is to remove solid particles, consequently ensure the removal of vapor and oil in the pneumatic circuit before they reach the Mini Line Filter.

●Recommended circuit



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